

Brief for the Maryland Judicial Proceedings Committee 1/30/2024

Thank you for allowing me to speak January 30th 2024 to the Judicial Proceedings Committee SB0125 and HB0486.

John Bee – Professional Geologist & Environmental Scientist LSRP retired
President of Tapash LLC, Certified Profession Geologist #6173 AIPG
Mobile (732) 267-5722 TapashB@aol.com, www.Tapash.net

Summary of John Bee's Experience Over the last 40 years

John Bee worked for USEPA & Union Carbide and Industry Superfund Cleanup

Owned and operated two Consulting and Superfund Cleanup Firms for 30 years in New York & New Jersey for the last 30 years: called Shakti and Tapash as a Project Site Manager Geologist/Hydrogeologist and Senior Environmental Scientist

John has worked for 20 years as a LSRP in NJ, a Certified Professional Geologist and Hydrologist on chemical spill investigation and cleanup. Tapash cleans contaminated sites. John also operates the National Institute for Brownfields Redevelopment (NIBR) that buys contaminated sites, cleans them up, manages a personal portfolio of Brownfields Redevelopment Sites.

John has worked on Disaster Response for USEPA and FEMA and as an Environmental Consultant and Hydrogeologist for the USEPA and Union Carbide from the 1970s through 2020.

Since the beginning of Superfund (CERCLA), John has been involved in Environmental Consulting and Chemical Spill Response for the USEPA and Industry and Redevelopment of Brownfield Sites in New York and New Jersey.

Over the last 40 years John Cleaned Chemical Spills for Industry & the Public, ISRA, UST, Water Supply and Engineering Geology projects in the USA, Canada, India, Puerto Rico, South America & the UK.

See attached resume

Table of Contents

- 1. Qualifications**
 - 2. Points to cover in two minutes**
 - 3. Superfund/NPL definitions**
 - 4. Remedial Investigation explanation**
 - 5. Ft Detrick as one example**
 - 6. Climate effects on SF sites**
 - 7. 0.5 mile Proximity**
 - 8. Case studies**
 - 9. TCE Impact as an Example**
 - 10. Demographics near SF sites**
 - 11. Resume**
-

Concerns to be emphasized to the Committee:

- The MD SB0125 and HB0486 proposed covers only Superfund Sites on the NPL List
- What is the Importance of USEPA Listing a Superfund Site on the NPL?
- the National Priority List
- Superfund addresses dangerous abandoned hazardous waste sites.
A Superfund Site is a property —often abandoned—where hazardous substances have been released into the environment either through misuse, improper disposal, or and criminal acts but mainly through IGNORANCE
- Example Commandant of Ft Detrick – asked Kemp to put Dairy Cows on Ultra Haz Area B
-
- NPL Listing is for the most dangerous sites

At these sites, the threat is sufficient to warrant an Hazardous Waste Cleanup to levels that will protect the public and the environment.

Examples are Love Canal and Lipari Landfill see attached EPA Histories

- The National Priorities List (NPL) is the list of sites of greatest National Priority among the known hazardous sites throughout the United States and its territories for long-term remedial investigation and remedial action financed under the federal Superfund program.
- Example: Fort Detrick was listed in 2009 after 20 years of neglect by Detrick
The USEPA Listed Area B at Fort Detrick in 2009 because the Dept of the Army had neglected the Ultra Hazardous site for over 20 years before, failing to investigate the Impact of the Area B ultrahazardous Biowarfare Landfill on the surrounding Farms and Housing Estates,

Fort Detrick has contaminated soil, sink holes, surface water and springs and groundwater in the Frederick Area

Now Contamination is still spreading out from Ft Detrick as it is uncontrolled

Such terms as “Not contaminated based on current data” & “sampling to date” Is misleading because it implies no risk but the verdict from EPA is not in yet

because the investigation and cleanup is continuing or they would be delisted

CERCLA in Real Estate

The owner or operator of a contaminated property are held responsible for the property's cleanup, based solely on their current ownership of the property. Nov 20, 2023

- **Listing the Site on the National Priority List (NPL) gives notice to Local officials, Realtors and home and property buyers that the site is Dangerous to Public Health**

List of Superfund Sites in Maryland below

The NPL guides the EPA in determining which sites warrant further investigation for environmental remediation.

- **As of 2017, there were 21 Superfund sites on the National Priorities List in Maryland. We are only dealing with these 21**
Two additional sites were currently proposed for entry on the **EPA's list of the most serious uncontrolled or abandoned hazardous waste sites** identified for long-term remedial action under Superfund.
- **The list is based on the Site score on EPA's Hazard Ranking System. (NPL)**
- **non-NPL sites subject to Superfund alternative approach (SAA) agreements. Many NPL sites remain in Remedial Investigation process of CERCLA for a decade or more and while the quality and quantity of contamination is being characterized, the boundaries of the known contamination usually expands**

Example Fort Detrick Maryland - Sites have long histories

- **On April 9, 2009 the USEPA designated Area B as an NPL site But the Camp commander was warned of the danger 20 years earlier by the Mayor of Frederick**
Because Ft Detrick had repeatedly failed to grasp the Environmental Impact of their past irresponsible actions in Area B and had repeatedly failed to cooperate with other Federal and State Agencies.

Before 2009 the Army did not have to reply to concerns for the USEPA and State of Maryland and the Armed forces were one of the worst polluters in our society.

Under the Federal Inter-Agency Agreements in 2009 Detrick's cavalier disregard for the environment and community health is illegal.

Fort Detrick had to fund a Remedial Investigation directed by the USEPA and Set up a Repository of Information in the Fredrick Library.

When we discovered the Repository (a whole room) the Plot got Interesting

See Facts About.. FORT DETRICK (MD-066), Frederick, Frederick County (attached)

All NPL Sites in Maryland

Region	State	EPA ID	Site Name	NPL Stat
3	Maryland	MDD980918387	<u>68TH STREET DUMP/INDUSTRIAL ENTERPRISES</u>	Proposed
3	Maryland	MD2210020036	<u>ABERDEEN PROVING GROUND (EDGEWOOD AREA)</u>	Final
3	Maryland	MD3210021355	<u>ABERDEEN PROVING GROUND (MICHAELSVILLE LANDFILL)</u>	Final
3	Maryland	MD0570024000	<u>ANDREWS AIR FORCE BASE</u>	Final
3	Maryland	MD0120508940	<u>BELTSVILLE AGRICULTURAL RESEARCH CENTER (USDA)</u>	Final
3	Maryland	MD9570024803	<u>BRANDYWINE DRMO</u>	Final
3	Maryland	MDD980504195	<u>BUSH VALLEY LANDFILL</u>	Final
3	Maryland	MDD003061447	<u>CENTRAL CHEMICAL (HAGERSTOWN)</u>	Final
3	Maryland	MDD980555478	<u>CHEMICAL METALS INDUSTRIES, INC.</u>	Deleted
3	Maryland	MD4690307844	<u>CURTIS BAY COAST GUARD YARD</u>	Final
3	Maryland	MDD985366756	<u>DWYER PROPERTY GROUND WATER PLUME</u>	
3	Maryland	MDD985397249	<u>FORT DETRICK AREA B GROUND WATER</u>	
3	Maryland	MD9210020567	<u>FORT GEORGE G. MEADE</u>	
3	Maryland	MD7170024684	<u>INDIAN HEAD NAVAL SURFACE WARFARE CENTER</u>	
3	Maryland	MDD980923783	<u>KANE & LOMBARD STREET DRUMS</u>	
3	Maryland	MDD980691588	<u>LIMESTONE ROAD</u>	
3	Maryland	MDD064882889	<u>MID-ATLANTIC WOOD PRESERVERS, INC.</u>	
3	Maryland	MDD980705099	<u>MIDDLETOWN ROAD DUMP</u>	
3	Maryland	MDD982364341	<u>ORDNANCE PRODUCTS, INC.</u>	
3	Maryland	MD7170024536	<u>PATUXENT RIVER NAVAL AIR STATION</u>	
3	Maryland	MDD980705164	<u>SAND, GRAVEL AND STONE</u>	

All NPL Sites in Maryland

Region	State	EPA ID	Site Name	NPL Stat
3	Maryland	MDD981038334	SAUER DUMP	
3	Maryland	MDD980704852	SOUTHERN MARYLAND WOOD TREATING	
3	Maryland	MDD000218008	SPECTRON, INC.	
3	Maryland	MDD980504344	WOODLAWN COUNTY LANDFILL	

This is a List of EPA NPL sited that existed on January 19, 2017

- **The Pathways for Exposure for Superfund Sites are Many and Complicated &**
- **Impact the Health Risks posed by various types of Superfund sites**
- **Superfund sited Contaminate soil, groundwater, surface water, streams, sediments, springs, Air, indoor air and vapor intrusions are most common, and found at Ft Detrick but sites can contaminate foods like milk as dairy cows grazed on Area B**
- **Initially John believed we were Investigating a Solvent Spill at Fort Detrick**
That was all that had been reported by Ft Detrick.
But nearly every house we visited had multiple generations with cancer
But in taking well samples we realized nearly every house we visited on Shookstown Road. Kemp Lane and Montevue Lane and Rocky Springs Road had multiple generations with cancer.
This was professionally alarming, Not my usual experience in investigating a solvent plume.
Figure 3.0 Environmental Features of Fort Detrick

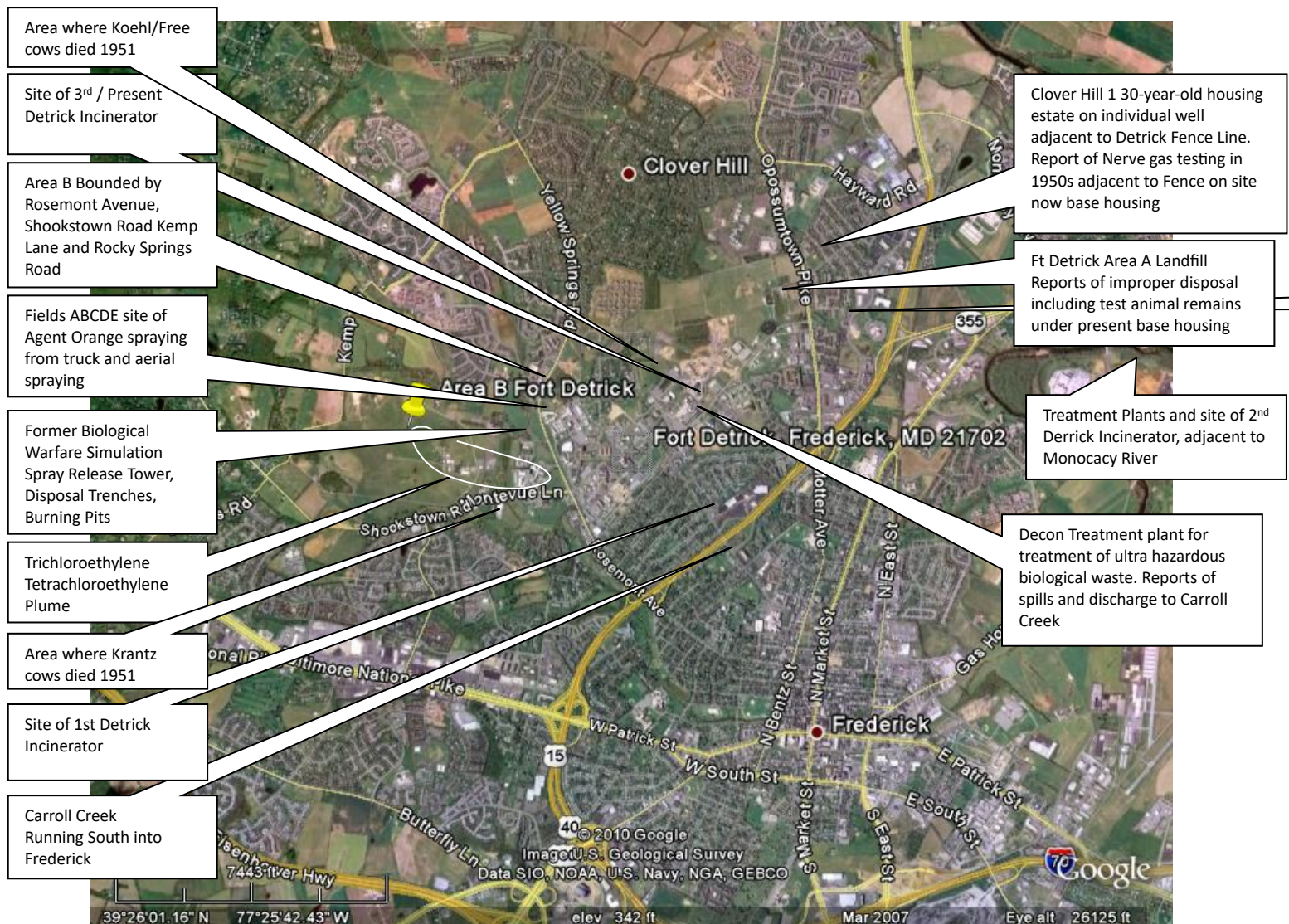


Figure 3.0 Environmental Features of Fort Detrick

I am convinced there was significant exposure of the local population in the 1950s – 1970s to hazardous chemicals causing 1000+ Cancer and Exposures continue Today as the plumes disperse

How did we find so many Exposure Routes and Cancers

By Visiting the Families we recognized Multiple Pathways for Exposure

We became increasingly alarmed when the neighbors recalled multiple potential exposures and spoke of relatives who had moved away and were not counted.

Only by a door to door survey of residents and the attention of the Press will find the cancers

Not a Cancer Registry Not a statistical Calculation – These are real families

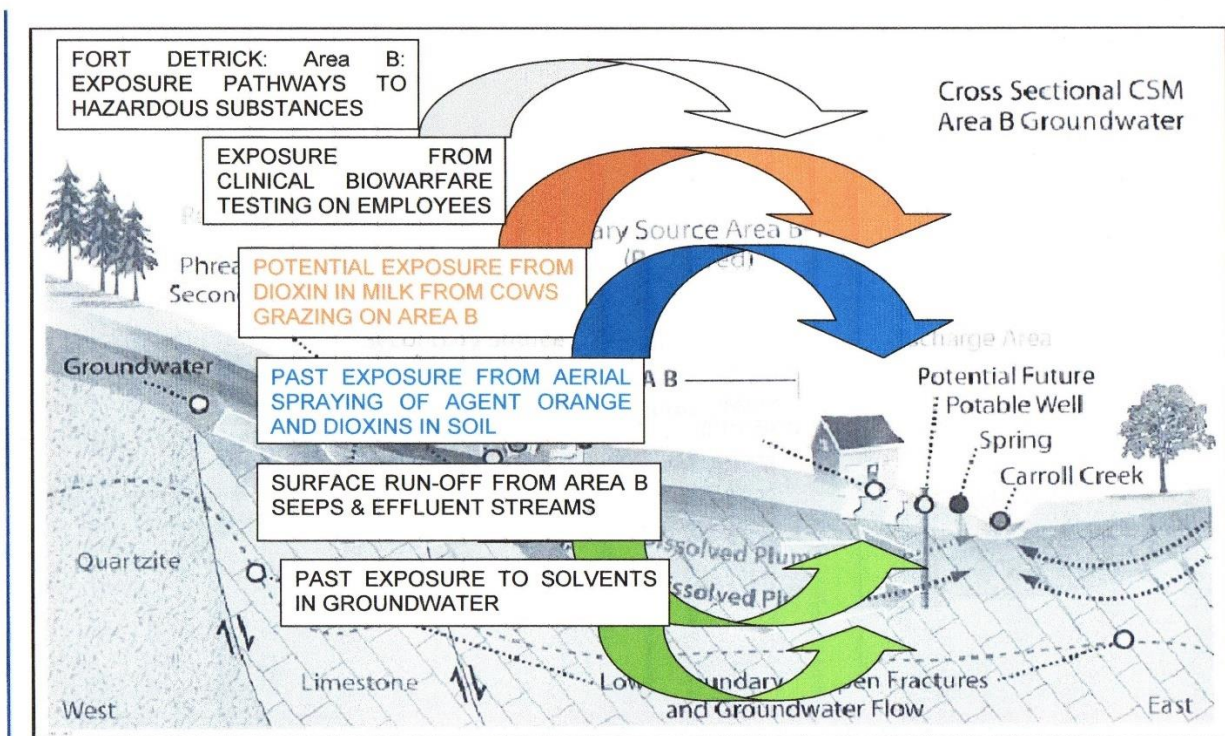


Figure 2. Proposed conceptual site model of Area B (from Shaw, Environmental, 2008). The geological and hydrogeological data

- **Exposure by Air From Clouds of Smoke from Burning Pits** in the 1960 and 1970s “blowing through the neighborhood,” (eye witness: Bill Krantz, Jim Krantz and Shirley Coblenz)
- **Exposures by Air from Aerial Spraying of Agent Orange**
 - On July 27th 2010 we were informed that the Army had released simulation chemical warfare agents from the Biochemical Warfare Simulation Tower in Area B and
 - Agent Orange from another Tower mounted on a truck in Area B along with Aerial Spraying over Area B Field A,B,C,D, and E in the run up to the Vietnam War.
 - Nerve gas was tested adjacent to Clover Hill in the 1950s (eye witness Steve Russell)

From Groundwater Contamination from drinking well water contaminated with Trichloroethylene and Tetrachloroethylene known to have been dumped in drums stacked 4 to 5 drums high in the Area B uncontrolled landfill. **Exposure by Drinking Water:** documented groundwater contamination running the length of Area B from site B-11. (Potential DNAPL in the Robinson well 23,000 ppb Trichloroethylene sampled). There are over 500 individual wells



- **In the Food Chain**

Area B of Fort Detrick was the landfill and testing area for Biochemical Warfare Agents

For Fort Detrick but was also

Used for farming: raising fodder for the test animals and for feeding a local herd of dairy cows of Bill Krantz produced milk that was sold throughout Frederick County and Washington!!!

25 of these cows died after Detrick sprayed a unknown chemical on the Area B Fenceline with proposed Waverly Estate Development ???

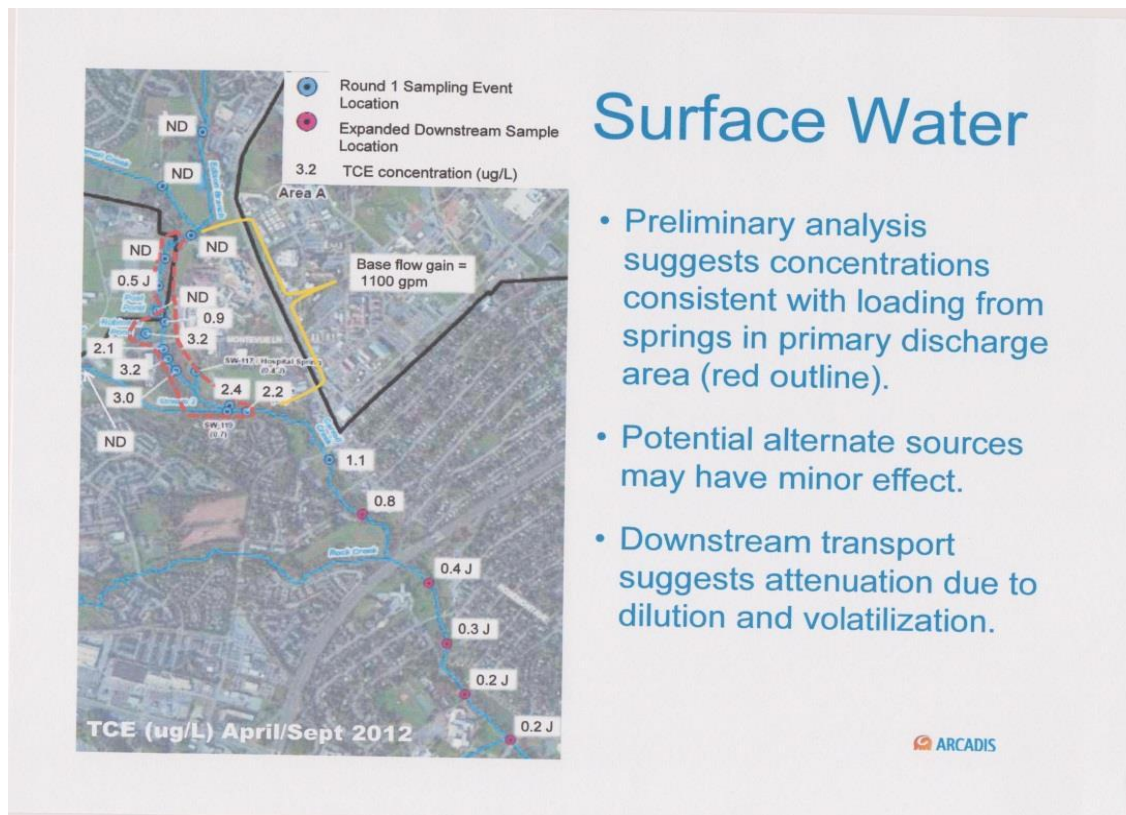
- **Surface Water Exposure in the Springs and Ponds**

The Monocacy River, Carroll Creek, and the Nallin Farm Pond are the three major bodies of water in the vicinity of Fort Detrick.

Carroll Creek transects Area B of Fort Detrick and comes within approximately 300 ft. of the western boundary of Area A.

Gerald Kohl and his young friends (victims) played on Area B and damming up Carroll Creek,

Seeps from Area B landfill seeps into Carroll Creek, (see Figure 3-3).



From Pesticide Spraying along the Fence lines

The Krantz Family

• Where his cows died suddenly after Ft Derrick had sprayed the fence line 1951 Fort Detrick sprayed herbicide along fence line and killed 25 cows instantly (Bill Krantz). "The cows ended up in a pile in my farm yard. Men in white suits came and told us not to touch them as they died. The vet wanted to shoot them to put them out of their misery. But the Army said if we killed them they would not pay compensation." At that same time 8 cows belonging to Grace Koehl died suddenly over a two-day period. ".The grass did not grow back for many years".

> Jim and Bill described:

- The sink hole where as a boy he saw Detrick waste thrown down the sink hole
- The area where waste was buried outside the landfill
- The testing and burning areas
- Where various people worked mowing that have died young

The Residents were exposed by Multiple Routes to Harmful Chemicals

Exposure to Biological Agents: Dottie Blank died of Cancer on Kemp Lane. She was not only poisoned with solvent laden groundwater, showered in Agent Orange from aerial spraying, exposed to Dioxin and smoke from burning pits but also injected with potentially lethal viruses in a Biowarfare Human Experiment from 1957 to 1967 at Fort Detrick

These were concerns raised by members of the community such as the Rice Family and the Koehl family by Bill and Jimmy Krantz all through this 20-year period but its true significance went unheeded by FT Detrick, the Maryland Dept of Health and the Maryland DNR.

20 years is the latency period of many cancers. Included Exotic Cancers that I do not normally find. The Rice family is one of 4 families that share a rare erythrocyte cancer common to the Ft Detrick area. We have failed to recognize their suffering as a cancer cluster.

But we did Recognize the Significance of Ft Detrick's Guilt and the Seriousness of the Exposure and the Victims

The Site “Area B” at Fort Detrick in Maryland is a dangerous place like all NPL sites

Area B is where the Army’s Chemical Corp dumped the waste from biochemical warfare research at Fort Detrick since the 1950’s.

Nobody knows knew what went into Area B but we are finding out.

In 1969 when Nixon signed the “Research Biochemical Warfare Ban”, all the biochemicals from that research were dumped in Area B. Area B was also used by the US Army for outdoor testing of biochemical warfare agents. This landfill is surrounded by farms and housing estates that were exposed to many hazardous chemicals including Dioxin and Trichloroethylene - potent carcinogens.

The victims include Randy White: his 26 year old daughter Kristen Renee died of brain cancer. His wife Debbie died of the same brain tumor, then his youngest daughter and now his grandchild 10-years old is having the same seizures and may be dying. And we found out why - a cocktail of Agent Orange, biochemical agents and solvents from USAMRIID.

The real victims need attention and respect because of this tragedy, their exposures affect the real lives of the White family, Grace Koehl, Bill Krantz, Ralph Gaver, Steve Russel, Dottie Blank, the Dintermanns, Elmer Cheeks, the whole Rice Family, Lewis Eyre and the Robertson family. (See Victims List)

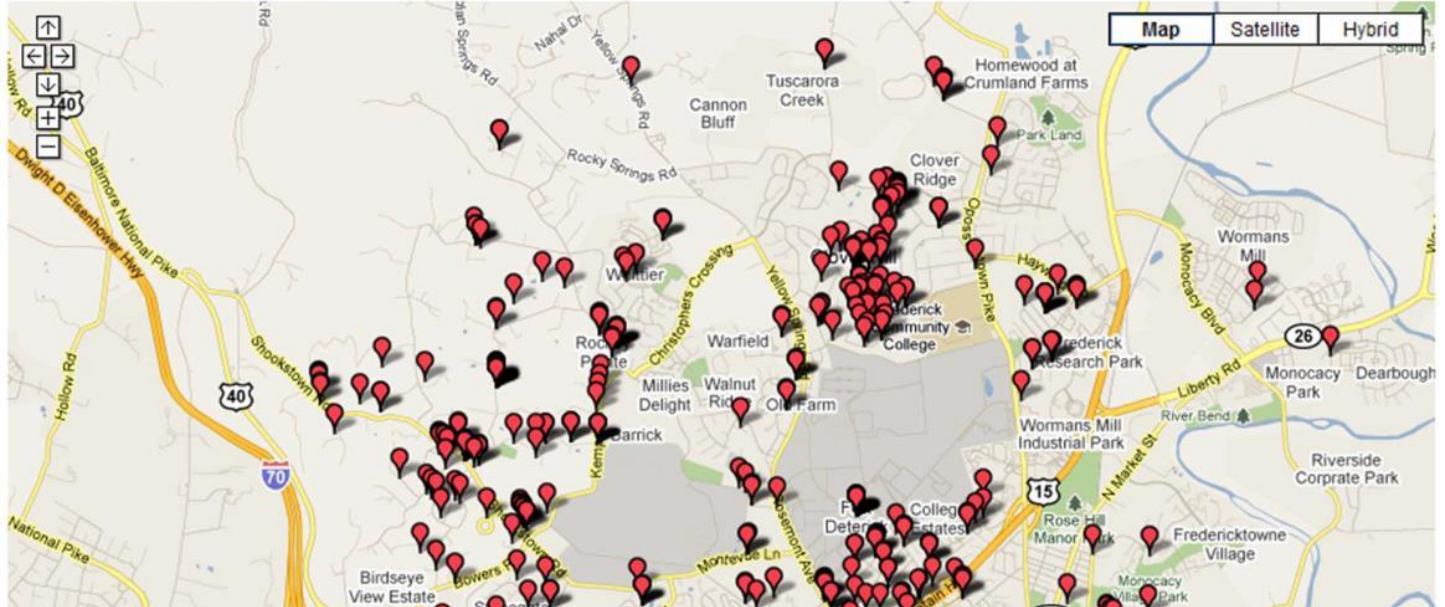
They lived next to this landfill Area B in a Karst (limestone) area where the USAMRIID dumped chemical and biowarfare agents. Randy founded the Kristen Renee Foundation and their consultant Tapash discovered this dioxin site and a potential cancer cluster along the perimeter road around Fort Detrick in Frederick, Maryland.

KRF has cancer cluster data in Frederick Maryland of over 1000 individuals: Nearly every house had cancers along the surrounding perimeter roads to the Landfill Area B and Test Area for Agent Orange has been affected. There are alarming numbers of a wide variety of cancers on Shookstown Road, Kemp Lane and Rocky Springs Road around Area B at Fort Detrick (see Contact Sheets), affecting young and old. The Rice family is one of 4 families that share a rare cancer common to Ft Detrick.

We collected reports from 1500+ individuals with cancer around Fort Detrick: - Nearly every house had cancers along the surrounding perimeter roads to the Landfill Area B and Test Area for Agent Orange

A community effort dedicated to ensure our water is pure, our air is clean, and our community is safe!

Filter: None | Number of Cases: 513



The Pathway of a Superfund Site change over time Hydrogeology of Karst: sinkholes, groundwater flow and Effect on the plume

Limestone under Area B has sink holes and regional fractures and discontinuities between the limestones that widen by solution

Area B sits on Limestone with sinkholes that communicate with the regional groundwater.

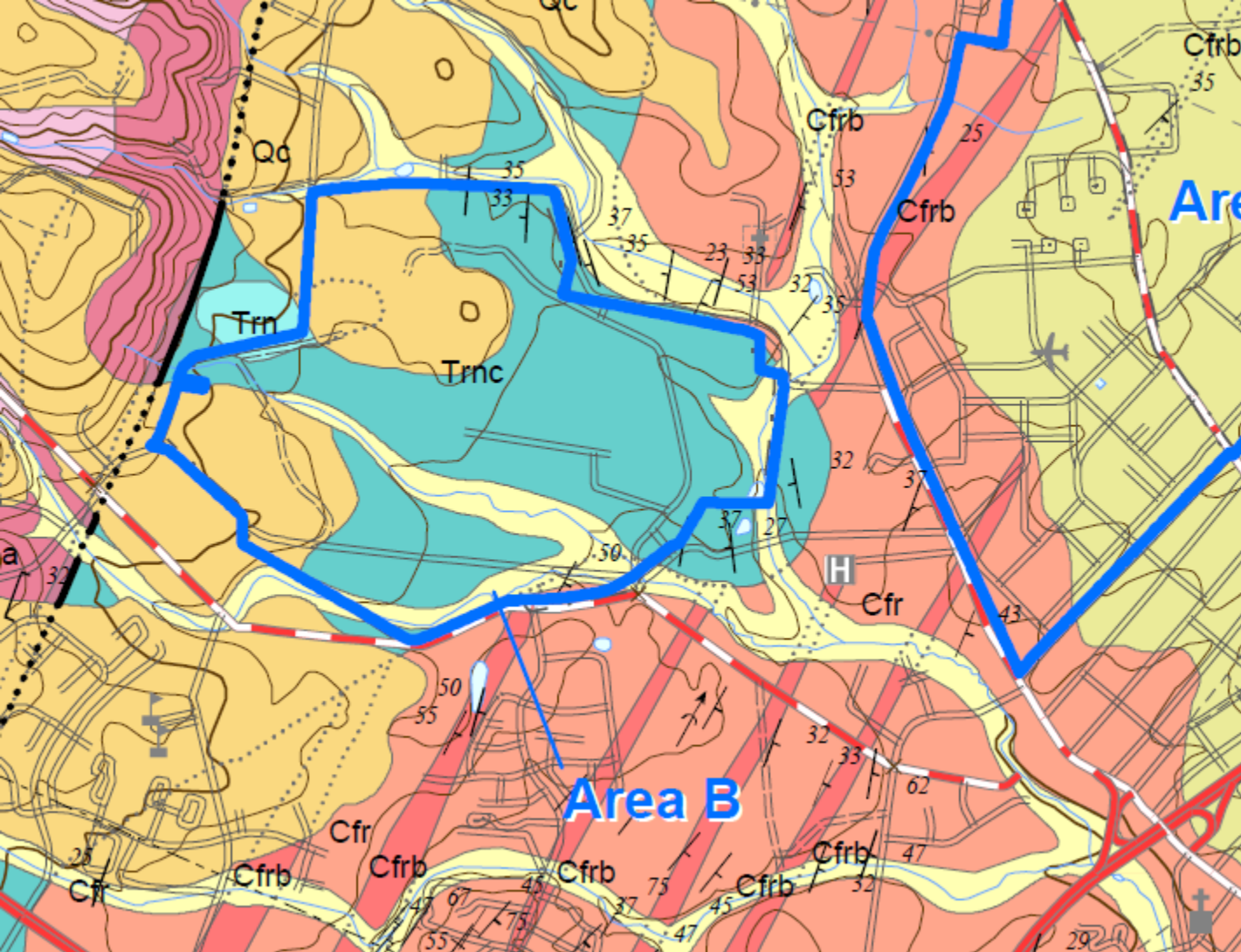
Streams flow into Area B and disappear into the waste site.

Perennially Springs discharge from Area B, form Ponds downgradient towards Shookstown Road and the groundwater from the hazardous waste site flows into Carroll Creek that flows into Frederick.

Hydrology: The perennial and intermittent streams which surround Fort Detrick and Frederick, originate at the higher elevations of Catoctin Mountain and flow into the adjacent carbonate valley (Frederick Valley). These streams are major sources of recharge to the bedrock aquifer supplying drinking water to Frederick. The streams are commonly influent or losing streams, which lose considerable amounts of water within a mile of the mountain. Disappearing streams which discharge directly into sinkholes in the limestone are present in Area B, such as Stream 1 (Figure 3-3).

Limestone terrains typically have a low density of perennial streams as a result of extensive underground drainage systems. Conversely, many of the streams downgradient in and around

Area B are fed by springs, such as Streams 3 and 4

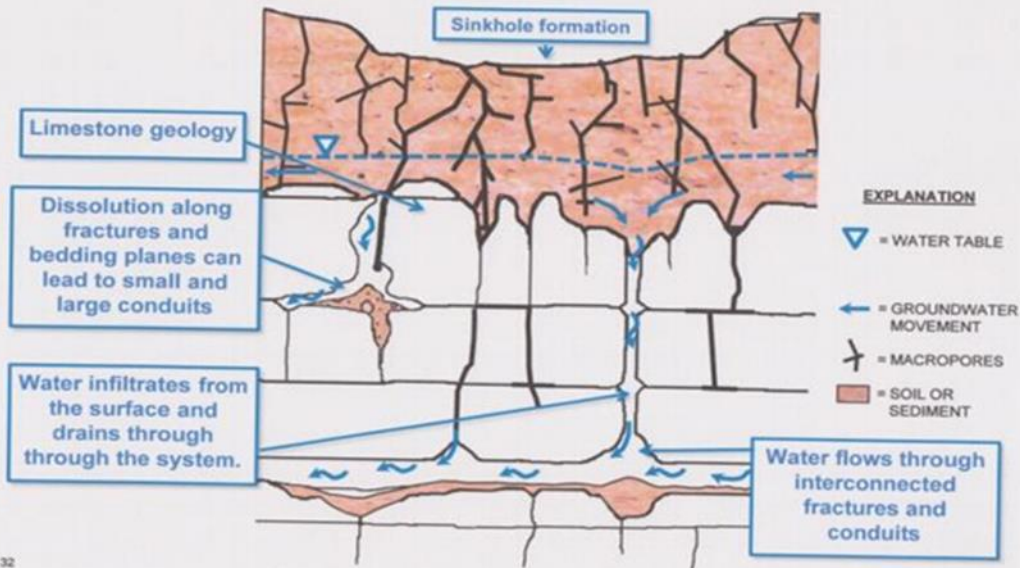


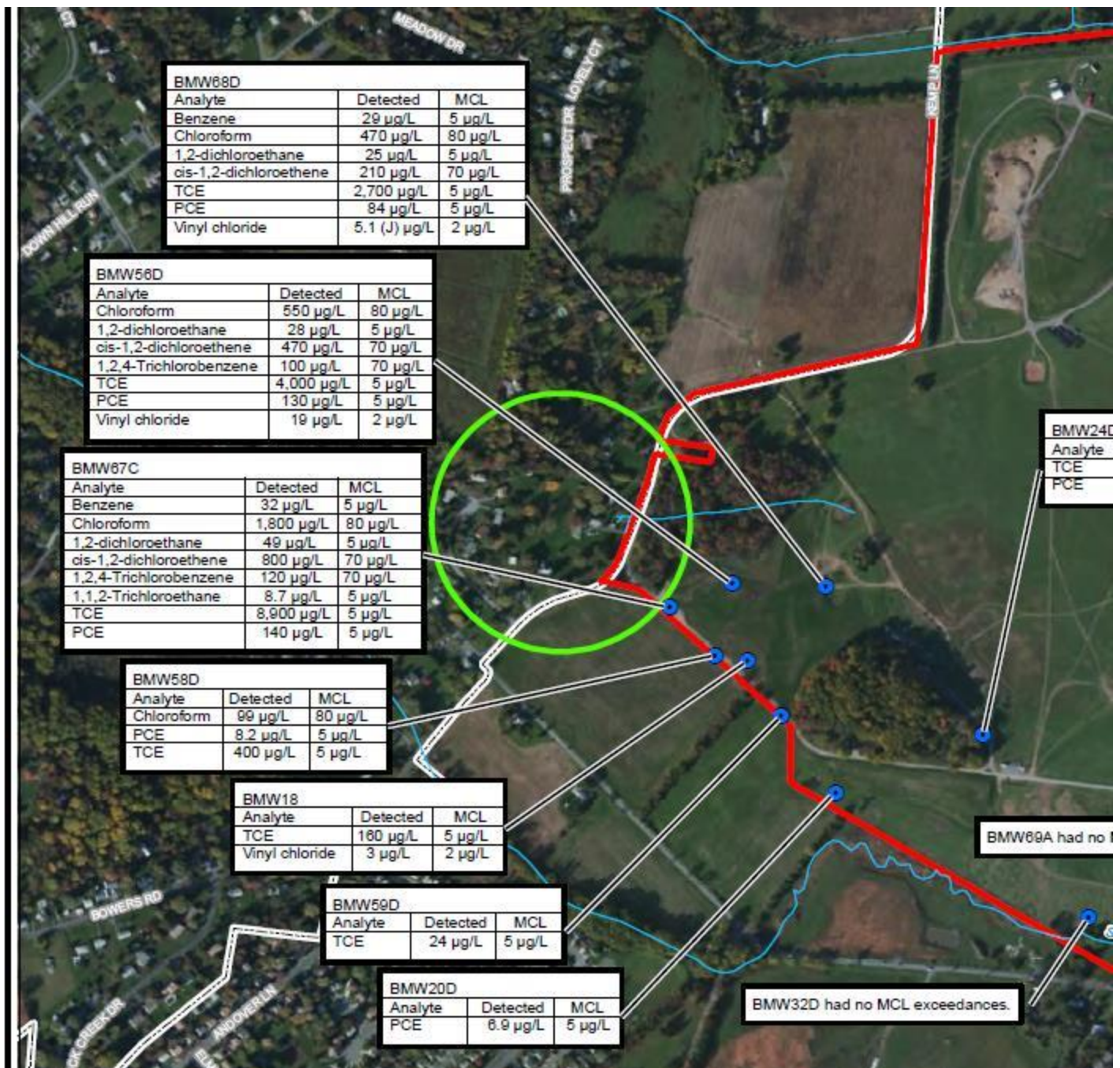
Area B Conceptual Site Model



Understanding Karst Geology

(Hypothetical Sketch)



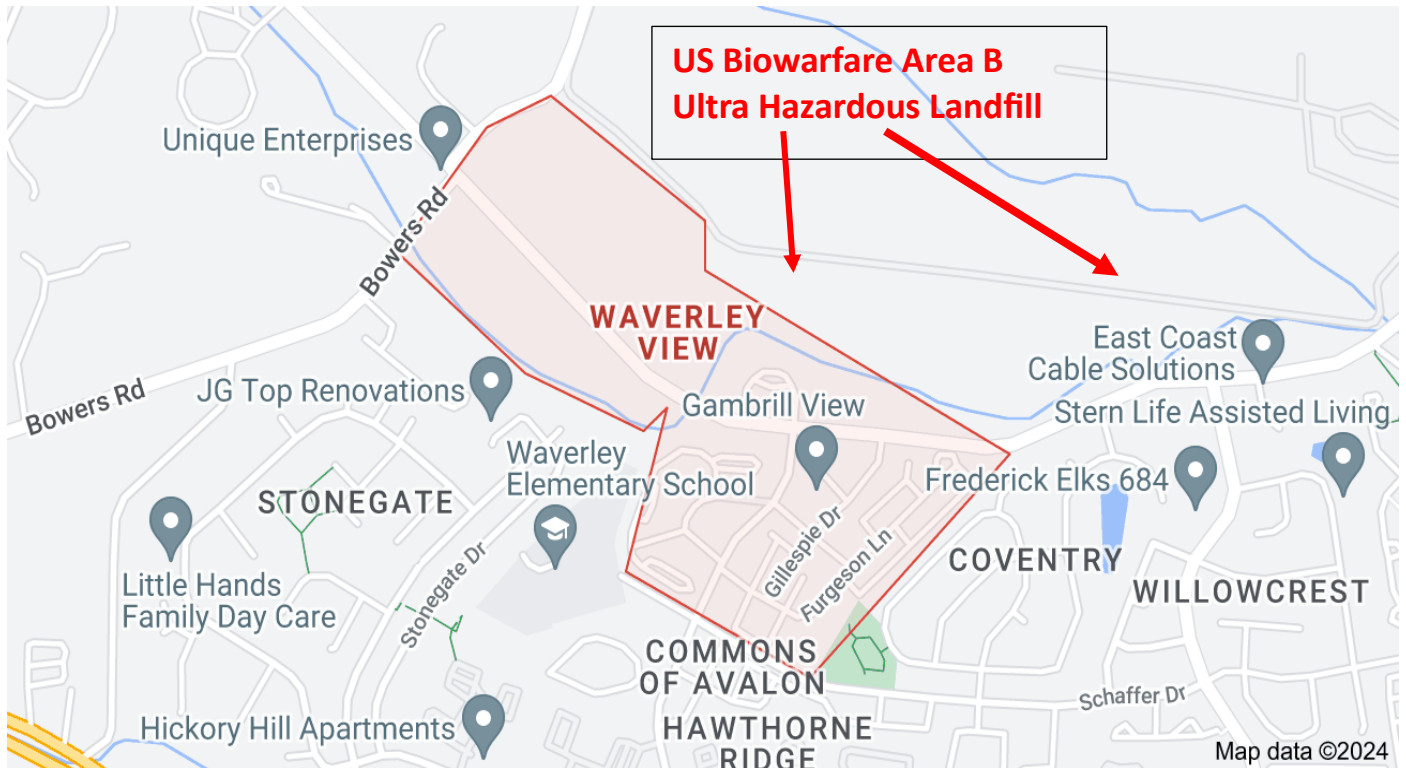


333

Like Detrick over three hundred Superfund sites are in danger of flooding in USA, putting millions of Americans at risk. In recent years, the frequency and severity of the hurricane-related flooding have increased, and over 50% of extreme floods occurred outside of FEMA flood zone. Frequency and severity of storms continues to increase and now pose a greater threat to these Superfund sites.

Surface streams flow through the Ultra-hazardous Landfill at Ft Detrick feet picking up Contaminants and Feeding sinkholes in the Karst limestone bedrock and the groundwater and downgradient springs and Carrol creek flowing under the perimeter fence

A residential housing estate Waverley View is planned adject to the fence line of Ara B and Carroll creek



WAVERLEY VIEW



What is it like to live in Waverley View, Frederick, Maryland?
Waverley View is located in Frederick, Maryland. There are roughly 777 residents, living in 278 households. The average temperature for Waverley View this time of the year is low of 23F and high of 41F. On average, Waverley View gets about 3.18 inches of precipitation in January. 39% residents are home owners, have a post-secondary degree (53%) and are single, no kids (41%)

What the Sales Literature does not mention is 25 Cows died on Bill Krantz Farm after Detrick sprayed to control weeds along the fence line near Waverley View

- **The research to support the .5 mile disclosure**
- **According to HUD Proximity to Superfund Sites is the proportion of a neighborhood located within one kilometer or 0.62 miles of a superfund site.**

So ½ mile in bare minimum

A superfund site is a hazardous waste site.

- **The higher the share of the neighborhood located close to a superfund site, the higher the negative impact on the neighborhood. Superfund data is from the Minnesota Pollution Control Agency.**

Superfund sites contain toxic pollutants. Living, working or going to school near a Superfund site may have negative health affects depending on toxins at the site. Superfund sites have been linked to adverse health effects including infant mortality, mental health, water and food-borne illness, and cancer..

How close is too close to a Superfund site?

Research shows adverse health effects most likely occur within a 1.8 mile boundary around a Superfund site. Approximately 21 million people live within a mile of a Superfund site, potentially exposing them all to harmful chemicals and toxins such as lead, arsenic, and mercury.Feb 16, 2022

What is proximity to Superfund? USEPA 0,62 miles

Proximity to Superfund Sites is the proportion of a neighborhood located within one kilometer or 0.62 miles of a superfund site that was active in 2014. A superfund site is an abandoned hazardous waste site.

***Health risks (with supporting data) of living near a Superfund Site**

Living, working or going to school near a superfund site may have negative health affects depending on toxins at the site. Superfund sites have been linked to adverse health effects including infant mortality, mental health, water and food-borne illness, and cancer.

HOWEVER, FROM A LIFETIME OF RESEARCH THE IMPACT OF A SUPERFUND SITE DEPENDS UPON:

ENVIRONMENTAL FACTORS SUCH AS HYDROGEOLOGY, THE AMOUNT OF RAINFALL, THE GROUNDWATER GRADIENT, THE STRUCTURE OF THE TERRAIN, THE PROXIMITY TO POPULATIONS AND THE SUBSTANCE INVOLVED AND NOT SOME ARBITRARY CIRCLE ON A MAP

SOME PLUMES ARE ONE MILE LONG, SOME TEN MILES LONG SO THAT PROXIMITY DISTANCE FROM THE PLUME SHOULD BE MEASURES FROM THE PLUME AND NOT THE CENTER OF THE HAZARDOUS SITE

CASE HISTORY: LIPARI LANDFILL

THE PLUME WAS 1 MILE LONG: ISSUED OUT OF AN ESCARPMENT FLOODED A MARSH PROCEEDED ALONG THE STREAM TO PITMAN

THE LIPARI LANDFILL is an inactive landfill on a 6-acre (2.4 ha) former gravel pit in [Mantua Township, New Jersey, USA](#), that was used from 1958 to 1971 as a dump site for household and industrial wastes. Toxic organic compounds and heavy metals dumped at the site have percolated into the groundwater and leached from the escarpment into Alcyon Lake in Pitman.^[1] The site has been identified as the worst toxic dump in the United States and was one of the first Superfund Sites ranked at the top of the [United States Environmental Protection Agency's Superfund](#) eligibility list.

History

Nicholas Lipari had operated a sand and gravel pit at the site. During the period from 1958 until 1971, the landfill accepted 46,000 barrels of chemicals, containing approximately 2.7 million US gallons (10,000 m³) of chemical and industrial waste, that were placed in trenches that had been excavated in the gravel pit.^[2] 12 thousand tons of solid industrial waste were also dumped at the site.^[3] The New Jersey Solid Waste Authority had the site shut down in 1971.^[2]

The toxic materials came from several different companies, with Philadelphia-based Rohm and Haas accounting for most of the material.^[2] Toxic material dumped at the site also came from an Owens-Illinois plant in Glassboro and a CBS Records plant in Pitman.^[4] More than 150 different chemicals, including BCEE (Bis-2-Chloroethyl ether – a potent Carcinogen), benzene, 1,2 Dichloroethylene, arsenic, lead and mercury have been identified at the site. In September 1985, USEPA filed lawsuits against seven companies, including Rohm & Haas, to recover the costs of remediation at the site.^[2]

Approximately 100,000 US gallons (380,000 l) of contaminated water had been leaking from the site on a daily basis, leaching into the nearby marsh and stream Rabbit Run, the groundwater or run-off.

In 1983, we constructed a 30-inch-thick (760 mm) slurry trench wall around the center of the dump site, seepage was reduced to 2,500 US gallons (9,500 l) per day.^[2] The contaminated areas at the dump site were capped with a high density polyethylene (HDPE) cap. The leachate was bled off by gravity beginning in 1992 through a upgraded treatment plant constructed to flush the landfill. By 1996 off-site work including excavation of the marsh, portions of the stream bed, and the lake sediment excavation was completed. Drains to capture contaminated water from outside and below the landfill were completed which must be operated indefinitely. These drains have successfully protected the surrounding environment from landfill contaminants and are constantly monitored to insure their effectiveness. Today, remediation continues at the Landfill through the removal of vast quantities of volatile organic compounds, such as benzene and toluene. These compounds are removed in the vapor phase and destroyed. To date (2010) over 500,000 pounds (230,000 kg) of contaminants have been removed from Lipari.

Effects

In the mid-1980s, the Borough of Pitman closed a playground at Betty Park, an area adjoining Alcyon Lake, as the levels of hazardous chemicals present in the soil were higher than safety levels established at the Federal level.^[2] A study performed by the New Jersey Department of Health in 1989 showed that those living within one kilometer of the dump site were at greater risk of adult leukemia and of giving birth to low birth weight babies than those living further away.^[4]

A follow-up study by medical investigators released in 1997 reviewing details of 9,000 children born to parents living near the dump site found clear evidence of a link to the toxic chemicals and a significant drop in birth weight and a risk of pre-term delivery that was twice as high as normal. The increased effects peaked for those children born between 1971 and 1975, a period when the contaminants leaking from the site were at their peak. The study also found that after the dump was closed and cleanup began, birth weights increased until they were higher than those from surrounding areas in the most recent data. The peer-reviewed studies were included in *Environmental Health Perspectives*, a monthly journal published by the National Institute of Environmental Health Sciences.^[3]

CASE HISTORY WALLKILL WELL FIELD, NEW YORK Superfund USEPA 1983-1990

THE PLUME WAS 1 MILE LONG IN FRACTURED BEDROCK & CONTAMINATED LOCAL WELLS

Wallkill Well field, New York - Superfund USEPA 1983-1990: Under contract to the USEPA Region II we investigated well contamination throughout a residential development. We conducted a site investigation of soil and groundwater to assess the hazard from the 1/4 mile-long Tetrachloroethylene plume that had infiltrated through the glacial till and had collected on top of bedrock and was moving through a fractured bedrock aquifer. We identified potentially responsible parties and assisted EPA Enforcement in formulating a Consent Order. We assisted in an Immediate Removal Action under Superfund to contain the spread of the groundwater contamination and provide alternative water supply to the homeowners. Through Geophysics we located the main fractures in bedrock carrying highly contaminated groundwater and the side fractures where wells would pull detectable quantities of contaminated groundwater during increased demand. By seismic geophysics we located a depression in the top of bedrock, drilled into that depression and sampled pure product 40 feet down. We installed a pumping well within a three-foot-deep sump and conducted a series of pump tests. The dissolved phase acted like a saline intrusion and peaked in certain wells on the main fracture: with concentration falling away when the pump was turned off. Wells on secondary fractures were only contaminated when pumping strongly from the main fracture. We installed a pump in the sump that only turned on when water was not sensed in the bottom of the well (when solvent displaced the groundwater) and we then pumped free product DNAPL to the surface.

A contaminant plume of Tetrachloroethylene was identified in the groundwater in the Washington Heights Section of Wallkill. Tetrachloroethylene was detected in 10 wells that had to be condemned. The highest concentration in the dissolved phase was 260,000ug/L ppb in the Parella well. But pure waste solvent DNAPL (dense non-aqueous phase liquid) was detected as a separate phase liquid in the bottom of the Parella well. A hollow in the top of bedrock was detected by geophysical and soil borings in a depression in the top of bedrock located more DNAPL. We pumped free product DNAPL to the surface with a pump that turned on when the solvent displaced the water in the bottom of the recovery well. Municipal drinking water supply was provided.

Site Hydrogeology; The stratigraphy of the site is a silty glacial till overlaying a sandstone and shale formation: the Austin Glen Series. The facility building sits upon fill and the parking lot to the south east of the facility is composed of fill that contains some metal objects and is in part reworked till that contains cobbles. There is approximately 23 feet of unconsolidated material under the building. The bedrock in general slopes to the southeast.

In 1983-85, the general lateral direction of groundwater flow in the till was from north to south in contrast to the westerly groundwater flow direction in the shale that was influenced by the over pumping of the groundwater reserves by residential wells on Highland Avenue. After the residences were provided with city water, the groundwater demand decreased along Highland Avenue and the direction of groundwater flow changed to a southerly direction.

Three hot spots were located of solvent spillage that appears to have seeped through the till and into the shale below to contaminate the wells. Any contaminants located in the shale near General Switch moved towards the Parella well along the preferred migration pathway - a bedding plane and fracture detected. The force moving the contaminants was the difference in head between the General Switch well 624.77' (static) and the Parella well 615.61' (static).

Subsequently, Shakti Consultants under contract to General Switch pump tests and packer tests were completed on site along with surface geophysical and down-hole surveys. Pumping of the surrounding wells such as Osbourne, Lobb, Parella and Pitt greatly change the potentiometric

contours. Pumping the Parella and Contel wells affected many of the contaminated wells showing a high degree of continuity of the regional fractures

The site was a CERCLA site and the investigation and remedial action was undertaken in strict adherence to USEPA CERCLA sampling procedures, quality control requirements.

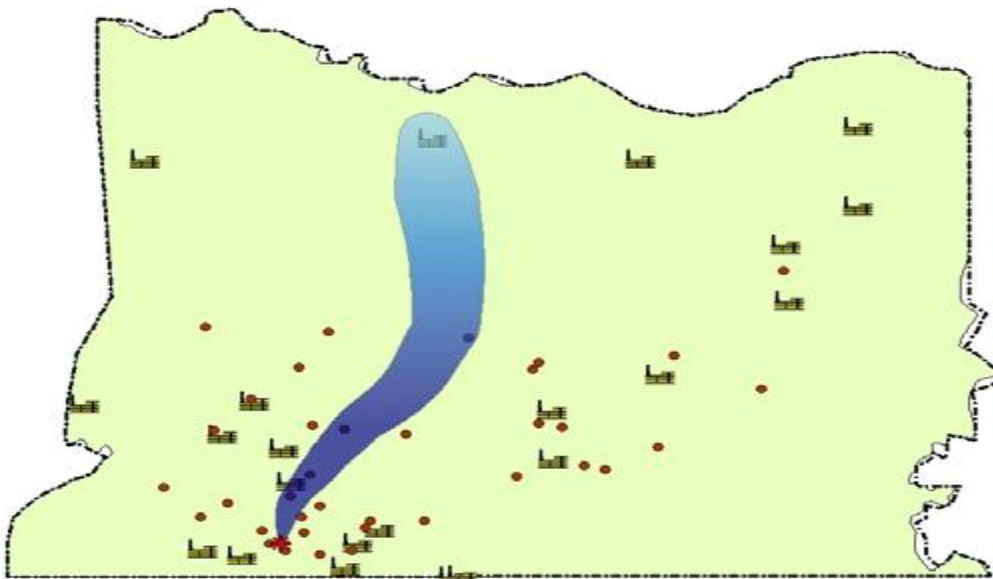
The Remedial Action; was as follows:

- o An air stripper was installed on site that treated the groundwater during the site investigation so that the solvent concentration in the groundwater discharged to the Wallkill was reduced from 100 to 250 ppm in the influent water to below 5 ppb in the effluent.
- o A product-only pump was installed to collect the pure solvent DNAPL product from the bottom of the Parella well.
- o A soil venting system was tested to remove the solvent from the clay soil in the hot spots of solvent spillage on site. The clay soil and wet conditions make soil venting unlikely to clean the soil in place. Alternatives for soil cleanup include excavation of the worst soil, analysis on site and segregation for incineration or secure landfill, depending upon the severity of the excavated soil contamination, or Soil venting in a soil pile on site under controlled conditions once the tight soil fabric is broken up.
- o In addition to the Parella well and five other wells including the Contel well were used for groundwater interception in the bedrock. The Contel well controls the hydrology of the downgradient extent of the plume and intercepted the flow of contaminants to downstream wells on the west end of Highland Avenue. The proposed remedial action was to pump from a minimum of six wells to reduce the time of travel of contaminants to a recovery well to speed cleanup. A solvent plume was also detected in the wetlands below the site that will be recovered with an interceptor trench.

CASE HISTORY Vega Alta, Puerto Rico

THE PLUME IN VEGA ALTA WAS 10 MILES LONG resulting from the rapid flow of groundwater in Karst (Limestone) bedrock and the steep groundwater gradients on the North Coast of PR

The water-table aquifer in Vega Alta, Puerto Rico, has been contaminated with volatile organic compounds. A three-dimensional ground-water-flow and solute-transport model was developed and calibrated to evaluate the effects of remedial alternatives designed to reduce the magnitude and extent of a trichloroethylene plume in the water-table aquifer. The development of the model was based on the computer code HST3D, developed by the U.S. Geological Survey. Heads measured from February 1983 to April 1992 were used to calibrate the ground-water-flow component of the model. Trichloroethylene concentrations measured in ground-water samples in January 1990 and March 1992 were used to calibrate the solute-transport component of the model, which consisted in the calibration of the longitudinal and transverse dispersivities, the distribution coefficient, and the solute influx at the source of trichloroethylene. Model input values assigned to specific storage, dispersivity, net recharge rates, effective porosity, riverbed conductivity, horizontal and vertical hydraulic conductivities, initial heads and trichloroethylene concentrations, and the locations of specified-head, river-leakage, and no-flow boundaries are described in this report. The root mean square error of simulated water-table heads from the ground-water-flow component of the calibrated model was 0.81 foot. The root mean square error of the simulated trichloroethylene concentrations, from the solute-transport component of the calibrated model, was 29 micrograms per liter of trichloroethylene.



The plume in Vega Alta was 10 miles long resulting from the rapid flow of groundwater in Karst (Limestone) bedrock and the steep groundwater gradients on the North Coast of PR

- **What are the possible routes of TCE exposure to human? (a Superfund heavy hitter) TCE shows up in many Superfund site**

The general population might be exposed to TCE via inhalation of indoor and outdoor air, contaminated drinking water, or dermal exposure to contaminated water. Inhalation is the primary route of exposure to TCE, as a result of TCE's volatility. Sep 9, 2022

- ***What are the risks associated with vapor intrusion from chemicals like TCE**

Exposure can result in effects to the immune and reproductive systems, liver, kidneys, central nervous system, and may affect fetal development during pregnancy. Long term exposures to TCE can increase the risk of kidney cancer.

Right of entry that may be required later for monitoring any groundwater plume or vapor intrusion barriers installed may cause issues

***Consumer rights in Real Estate transactions (Consumer Fraud, Material Facts, Latent Defects)**

Consumer Rights in Real Estate

- As a consumer you have rights, including the right to be informed about anything concerning your purchase. You also have the right to privacy to protect your personal information during and after making a purchase. These same rights apply when buying and selling real estate.

***Data on lower income neighborhoods being most affected per statistics**

TABLE 1: Proportions of Key Demographics in the Total Near Site Population and the Total U.S. Population

	Population within 1 mile of All Sites	Population within 3 miles of All Sites	U.S. Population
Minority	49.8%	49.4%	39.6%
Below poverty level	15.4%	15.1%	13.7%
Linguistically isolated	7.8%	7.3%	5.1%
Less than a High School Education	14.9%	14.1%	12.5%

Population Surrounding 1,857 Superfund Remedial Sites Superfund Remedial sites exist in thousands of communities across the U.S. ranging from remote to large urban settings. Many of these sites are in economically distressed communities. To help describe who benefits from EPA's Brownfields Program, the Agency used 2015-2018 American Community Survey populations data and FY 2019 Brownfields to summarize the population living within 3 and 1 miles of sites. These sites include Superfund and Federal Facilities final, deleted, and proposed National Priorities List (NPL) sites, non-NPL Superfund Alternative Agreement sites.

Demographics and impact on Near-Site Populations:

- While there is no single way to characterize communities located near our sites, this population is more minority, low income, linguistically isolated, and less likely to have a high school education than the U.S. population as a whole.
- **How land gets approved for homes after a Site Inspection but before the Remedial Investigation is finished so local Planning Commission's hands are tied to deny planning permission**
- **(no data is officially listed yet even if there is suspected contamination)**
- **Because your local officials believe they have no right to disapprove a planning permission "based on Current data" while the risk is investigated**
- **During an on-going investigation the developers are able to game the system.**
- **The problem with Waverley Developers is that they bought the property before they understood its risk, before they did proper research starting with a Phase 1 and now they want to push the risk of illness onto gullible homebuyers**
- **This issue is too important and too large to add to the current 4 page MD 10-702 Disclosure Disclaimer form**
- **it isn't suited to shove in between a leaky roof and airport noise)**
- **The senate has entertained excluding Baltimore City due to the density of housing. A Bad idea as their rights are no less than any other citizen**
- **Maryland Bill B0125 is just a start: It addresses the Tip of the Iceberg.**
Perhaps 10% of the sites that can hurt your children and your wife
- **Waverley View** development joined the voluntary cleanup plan and attempted to dupe the local council; and the home buyers by: not mention the elephant in the room

By using the misleading phrases like based on "current sampling the site is clean" this loophole needs closed

Environmental Searches

- ✓ NPL: EPA NATIONAL PRIORITY LIST - The National Priorities List is a list of the worst hazardous waste sites that have been identified by Superfund. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money.
- ✓ A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.
- ✓ FINAL - Currently on the Final NPL PROPOSED - Proposed for NPL

This B0125 Search does not included the many data bases that for decades Env specialist have to research to study a new property for purchase according to ASTM Std

All the NJ developers conduct a Phase 1 Enquiry before they buy a site That include additional Phase 1 data bases for \$300. It makes sense to them

Additional data bases reviewed in Phase 1

NPL DELISTED: EPA NATIONAL PRIORITY LIST Subset - Database of delisted NPL sites. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

DELISTED - Deleted from the Final NPL CERCLIS: EPA
Removed from Proposed NPL SCAN PLAN

NFRAP: EPA COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

NFRAP – No Further Remedial Action Plan - Site is part of NPL site D - Deleted from the Final NPL F - Currently on the Final NPL N - Not on the NPL O - Not Valid Site or Incident P - Proposed for NPL R - Removed from Proposed NPL S - Pre-proposal Site W – Withdrawn

RCRA EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM

SITES - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. RCRA Info

RCRA TSD: EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM

TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that treat, store, dispose, or incinerate hazardous waste.

RCRA GEN: EPA/MA DEP/CT DEP RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM GENERATORS - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that generate or transport hazardous waste or meet other RCRA requirements.

LGN - Large Quantity Generators SGN - Small Quantity Generators VGN – Conditionally Exempt Generator.

Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.

HAZARDOUS WASTE MANIFEST – Database of all shipments of hazardous waste within, into or from Connecticut. The data includes date of shipment, transporter and TSD info, and material shipped and quantity. This data is appended to the details of existing generator records.

HAZARDOUS WASTE GENERATOR – database of generators that are regulated under the MA DEP.

VQN-MA = generates less than 220 pounds or 27 gallons per month of hazardous waste or waste oil.

SQN-MA = generates 220 to 2,200 pounds or 27 to 270 gallons per month of waste oil.

LQG-MA = generates greater than 2,200 lbs. of hazardous waste or waste oil per month.

ERNS: EPA/NRC EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) - Database of incidents reported to the National Response Center. These incidents include chemical spills, accidents involving chemicals (such as fires or explosions), oil spills, transportation accidents that involve oil or chemicals, releases of radioactive materials, sightings of oil sheens on bodies of water, terrorist incidents involving chemicals, incidents where illegally dumped chemicals have been found, and drills intended to prepare responders to handle these kinds of incidents. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: DOI/BIA INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation.

BUREAU OF INDIAN AFFIARS CONTACT - Regional contact information for the Bureau of Indian Affairs

State/Tribal Sites: **STATE KNOWN CONTAMINATED SITES IN NEW JERSERY DATABASE** -

maintained by the New Jersey Department of Environmental Protection's Site Remediation Program. The database includes sites within the State of New Jersey where contamination of soil or ground water is confirmed, and where remediation is either currently underway or pending.

State Spills DATABASE OF EMERGENCY RESPONSE ACTIONS AND SPILL RELEASES - maintained by the Division of Environmental Safety, Health, and Bureau of Discharge Prevention.

State/Tribal SWL: **DATABASE OF SOLID WASTE LANDFILLS** - maintained by the Division of

SOLID WASTE Bureau of Solid Waste Regulation.

State/Tribal LUST: **STATE LIST OF LEAKING UNDERGROUND STORAGE TANKS** - maintained by the Division of Environmental Safety, Health, and Analytical Programs Bureau of Discharge Prevention. The database is derived from the New Jersey spills database.

State/Tribal UST/AST: **STATE DATABASE OF UNDERGROUND STORAGE TANKS** - maintained by the Bureau of Federal Case Management Registration Billing Unit.

State/Tribal VCP: **STATE MOA VCP DATA** - In April 1992, the

VOLUNTARY CLEANUP PLANS (VCP) Environmental Protection's

responsible parties, developers, local officials, or individuals may work with the department to remediate.

BROWNFIELDS VCP DATA AND NJ BROWNFIELDS SITE MART SITES -sites contained in the NJ Voluntary Cleanup Program data and sites listed on the NJ Brownfields Site Mart, www.njsitemart.com.

RADON: N TIS NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

John conducted a Phase 1 before he bought the property for 60 Townhouses in the West End Redevelopment in Hammonton NJ.

Based on the Phase 1 and diligent site inspection he conducted Phase 2 sampling

Based on the sampling results he excavated some heavy metals, took out 3 underground tanks before they leaked and excavated a 6” coal layer from a minor coal yard

It made sense for liability and was the right thing to do

Resume

**John Bee Professional Geologist Environmental Scientist LSRP Engineering Geologist
President of Tapash LLC, Certified Profession Geologist #6173 AIPG
Mobile (732) 267-5722 TapashB@aol.com, www.Tapash.net**

John Bee operated two environmental companies in New York & New Jersey for the last 30 years: Shakti Consultants and Tapash: He worked as an Environmental Consultant & Engineering Geologist for USEPA: John has worked as a LSRP in NJ, a Certified Professional Geologist and Hydrologist on chemical spill investigation and cleanup. Tapash cleans contaminated sites. John also operates the National Institute for Brownfields Redevelopment (NIBR) that buys contaminated sites and develops and manages a personal portfolio of Brownfields Redevelopment Sites.

John has worked on Disaster Response for USEPA and FEMA and as an Environmental Consultant and Hydrogeologist for the USEPA and Union Carbide in the previous ten years. Since the beginning of Superfund (CERCLA), John has been involved in Environmental Consulting and Chemical Spill Response for the USEPA and Industry and Redevelopment of Brownfield Sites in New Jersey. Over the last 25 years John has worked on Chemical Spills, ISRA, UST, Water Supply and Engineering Geology projects in the USA, Canada, India, Puerto Rico, South America & the UK.

EXPERIENCE SUMMARY

ENVIRONMENTAL EXPERT, SENIOR GEOLOGIST, ENVIRONMENTAL SCIENTIST, PRESIDENT,
John worked as an Engineering Geologist, building roads, bridges, dams, city centers and housing, and as an expert witness in England, Ontario Canada and the USA

Tunnel under Lake Ontario: Site investigation, instrumentation and stability testing for 2-mile Tunnel under Lake Ontario through shale and limestone formation that presented significant risk of collapse

A Tunnel Boring Machine was used to drive a 25'-diameter tunnel for wastewater discharge

Slurry Walls installed around LiPari Landfill, NJ for USEPA & Napoleonville lagoons in Louisiana

In the USA, John developed Shakti Consultants and Tapash into turn-key environmental consulting firms He has extensive experience working for very small to very large corporations, law firms, insurance companies and government agencies. Areas of expertise include chemical industry audits, groundwater investigations and spill cleanup including underground tanks, process spills including solvent spills, property transfer, RCRA compliance, audits and contingency planning, emergency response, hazardous waste management, training and public relations

As a Senior Geologist and Project Manager for Union Carbide, he directed the site investigations, spill responses and remedial actions for numerous environmental spills. He coordinated compliance with hazardous materials spills & hazardous waste regulations facing this major corporation.

As a Consultant to the U.S. Environmental Protection Agency his experience, as a Senior Geologist and Project Manager, included major CERCLA/Superfund sites involving air, surface water, groundwater and solid waste management. He directed the investigation and remedial action at over 100 major hazardous material spills and hazardous waste sites including nine Superfund sites. As a Senior Emergency Response Team Member, his experience includes the management of responses to chemical fires, spills of oil, PCB, pesticide, gasoline, solvent and metals to lakes, rivers, soil and groundwater. He responded to a wide variety of haz-mat incidents and air pollution episodes for the USEPA and Union Carbide in New York, New Jersey, Ohio, Louisiana, Texas and Puerto Rico.

Disaster Relief: As an Engineering Geologist he assisted in reinstating hydroelectric power to San Juan, Puerto Rico following hurricanes and subsequently completed a survey report on landslides. Worked for Federal Emergency Management Authority (FEMA) on Disaster Relief in the USA following Floods and Hurricanes. Assessed the damage to dams, public works, roads, bridges and treatment plants following floods and hurricanes in New York, New Jersey and Puerto Rico.

Groundwater Cleanup/Contaminant Hydrogeologist: Tapash employs very effective methods in investigating and cleaning up gas tank spills using field portable equipment and chemical and bio-oxidation treatment of the fuel spilled in the soil and groundwater.

Spill Cleanup for Property Transfers, Phase 1 and 2 Audits Redevelopment: For the last ten years, John has specialized in the investigation, cleanup and property transfer of industrial and commercial properties in the USA

Expert in the Dangers of Chemical Warfare Research

Investigation of Chemical and Biological Warfare Landfill and Cancer Clusters: Discovered 1000 cancers clustered in 3 generations in too many families surrounding the NPL-Listed, ultra-hazardous waste site Area B Fort Detrick Maryland: They were found ignorant of the environmental impact of their research and the suffering caused by poorly managed cleanups. Proved a malfunction of their ultra-hazardous waste treatment plant would contaminate two swimming pools downstream. Briefed the Maryland Senate.

Redevelops Derelict Brownfields Sites: John buys and redevelops Brownfield Sites: environmentally contaminated properties. John has the expertise to develop properties with capital appreciation potential and has developed the expertise in project engineering, project management, consulting and redevelopment construction, comprehensive environmental risk assessment, mitigation, and cleanup for the remediation of contaminated or derelict real estate. John can further renovate, build new and develop the feasibility and business plan.

John at present is working on the redevelopment of 6 acres in downtown Hammonton that was derelict. It will be a 59-Townhouse community

Licensed Site Remediation Professional Retired Licensed by the State of New Jersey to investigate, remediate and close out hazardous waste and chemical spill sites.

EDUCATION

MSc Candidate Univ. of Connecticut. Disaster Response and Humanitarian Aid 2004

BSc. Geology and Zoology with Honors. University of London, 1971.

MS Graduate Courses, Environmental Science, McMaster University, 1975 and

Graduate Course in Hydrology - College of Graduate Studies, Charleston, WV, 1983.

PROFESSIONAL ASSOCIATIONS, REGISTRATIONS & CERTIFICATIONS

President Tapash, Environmental Consultants 1997 to present

President of National Institute for Brownfields Redevelopment, 1997 to present

Certified Professional Geologist of the American Institute of Professional Geologists #6173 NJ

Licensed Site Remediation Professional (LSRP # 573502 in 2010).

Underground Tank Closure and Subsurface Evaluation Certification 0009722 NJ#G0000413

Emergency Response Team Member & Training Instructor for USEPA

Councilman for Jamesburg, NJ, 1983, 1994 to 1997

Chairman of Public Works Jamesburg, NJ. 1994 to 1997

Cancer Cluster investigation in Maryland: Brief to Maryland Senate on chemical screening 2014

UK and US Citizen, speaks English and French some Hindi, Bengali and Sanskrit

Sea Captain for 20 years: Captain's Licensed by USCG 2016.

Martial Artist: Ishanru Karate, Kung-Fu and China

Site Description: Fort Detrick



MDE Fort Detrick is located in Frederick, Maryland, approximately 45 miles north of Washington D.C. and 47 miles west of Baltimore, Maryland. It consists of three non-contiguous tracts of land, Areas A, B and C, with an area totaling 1,230 acres.

Area A covers 799 acres and contains most of the buildings and facilities for base operations. The surrounding land use is commercial and residential.

Area B consists of 399 acres located 0.5 miles west of Area A. The surrounding land use also is residential and commercial. Area B contains permitted and unpermitted landfills, test areas.

Site History

From 1943 through 1969, Fort Detrick was the nation's center for offensive and defensive biological warfare research. On November 25, 1969, President Nixon signed an executive order that outlawed offensive biological warfare research. However, defensive biological warfare research continues at Fort Detrick to this day.

In 1987, the Army discovered trichloroethene (TCE) in a production well that currently supplies Building 568 in Area A with water used to conduct fish studies. From approximately 1953 to 1970, Building 568 was the site of a brine refrigerating facility that utilized TCE as the circulating brine. TCE levels in the production well ranged from 300 parts per billion (ppb) to over 2000 ppb. Investigatory information suggested that low levels of TCE were migrating off base, leading the Army to conduct additional work to better define the potential for an off-site release. Wells were installed and sampled along the facility boundary hydrologically downgradient of Building 568. TCE at or just above the maximum contaminant level of 5 ppb was identified in samples from two of these wells. There are no residential wells in the off-post area downgradient of this plume.

Area B was originally purchased for use as an outdoor testing area for biological simulants. It was also a disposal site for construction and demolition debris, incinerated biological wastes, autoclaved animal carcasses, excess chemicals and herbicides, and accumulated sludge from the decontamination systems associated with the biological warfare research. The common disposal practice was digging a trench and disposing of wastes directly into the unlined trenches.

Documentation shows that waste laboratory chemicals and waste solvents were poured directly into the trenches, which allowed the wastes to contaminate the underlying soils and to percolate into the groundwater. It has also been confirmed that containers of liquid waste chemicals were disposed of in some of the disposal trenches in Area B. In the northern portion of Area B, a permitted sanitary landfill was constructed over a portion of an older, unlined unpermitted landfill. Monitoring wells present in Area B currently indicate the presence of various solvents in the groundwater.

In the Summer and Fall of 1992, the Maryland Department of the Environment (MDE) conducted a residential well survey around Area B followed by sampling of all identified residential wells. TCE and a suite of other volatile organic compounds were detected in residential wells located to the southeast of Area B.

Samples from four of the residential wells were found to contain TCE above regulatory levels. Groundwater contamination was initially addressed by placing affected residents on bottled water. The Army connected three of the four residences to the public water supply. The fourth residence was torn down and the well abandoned when the resident relocated. Due to the relatively low levels of contamination encountered historically and the nature of the karst aquifer beneath the facility, there was no major effort by the Army to address groundwater remediation at that time.

As a result of field investigations performed in 1997-1999, Fort Detrick identified potential “source areas” in the vicinity of the B-11 Trench area. Sampling of both ground and surface water in 1998 indicated that there was a significant elevation of the concentrations of both TCE and perchloroethene (PCE) in the ground and surface waters on and immediately adjacent to the southeast corner of Area B. This was the first measurement of high levels of PCE in the groundwater at the facility. Monitoring of both ground and surface water during 1999 indicated that contaminant levels dropped significantly from the high levels initially found in the 1997/1998 field phase of the Remedial Investigation. Contaminant “spikes” of this nature are not unusual in karst aquifer systems. Consequently, Fort Detrick continued an extensive monitoring program while remedial alternatives were further evaluated.

Since 2000, the Army conducted a removal action at the B-11 Disposal Pits to remove potential continuing source material. The removal of waste and contaminated soil from four pits in this area was completed in the winter of 2004. During 2007-2008 the Army signed decision documents for seven disposal areas relying on the US Environmental Protection Agency's presumptive remedy guidance for landfill closure. The landfill covers, which are currently being completed, meet the requirements of Maryland Solid Waste closure regulations for landfills.

In the winter of 2007 the Army's contractor submitted a ‘path forward’ document addressing Area B's groundwater. The Department did not agree with the adequacy of the contractor's proposal. Because of nature and the complexities of the karst aquifer which underlies Area B, the MDE supported the U.S. Environmental Protection Agency's (EPA) reevaluation of the site for potential inclusion on the National Priorities List (NPL). The Army,

EPA and the Department explored an alternative, an enforceable agreement between the Army and the Department, to listing the site on the National Priorities List (NPL). The negotiation of this alternative continued into the fall of 2007, but ultimately failed. Since the negotiations on an enforceable agreement were not successful, EPA submitted a listing package to EPA Headquarters, supported by the Governor. In June 2008, MDE wrote EPA requesting that it takes prompt action on the listing package. The U.S. EPA placed the Fort Detrick Area B Ground Water on the National Priorities List on April 9, 2009.

Environmental Investigations

Document reviews and environmental investigations of varying scopes have been conducted at Fort Detrick. In 1993, a base wide Remedial Investigation/Feasibility Study (RI/FS) was initiated by the Army to identify and characterize fifteen potential areas of concern that were not investigated thoroughly in the previous investigations. The RI/FS for Area A included geologic studies, soil gas surveys, and groundwater assessments. The results of this study showed TCE contaminated groundwater posed the greatest risk to human health and the environment. In order to monitor the effectiveness of the existing groundwater treatment system in Building 568, a long-term sampling program has been implemented at Area A.

Current Status

Technical meetings between the U.S. Army, the EPA and the MDE are being held to discuss the appropriate path forward regarding the investigation of groundwater contamination at Area B. Recent meetings have discussed future dye trace studies, additional monitoring wells, karst aquifer characterization and appropriate sampling parameters. A final work plan for the next phase of investigation at the site is in the final stages of development. Landfill designs, including sediment and erosion control plans, have been both reviewed and accepted by MDE. Cover construction for all the landfills is underway. It is anticipated that the project will be completed in the summer of 2010.

Facility Contacts

John Fairbank Chief, Federal Facilities Division, HWP (410) 537-3440
Robert Craig Fort Detrick (301) 619-8345
1800 Washington Boulevard | Baltimore, MD 21230-1718 | www.mde.state.md.us
410-537-3000 | 800-633-6101 | TTY Users: 800-735-2258 MDE

General Questions: Detrick Environmental Contamination Concerns

1. Sampling was performed near Carroll Creek and the results were positive for TCE. See MDE letter posted under the October 3, 2011 meeting heading found on the main Cancer Investigation webpage on the Health Department's site (www.FrederickCountyMD.gov/CancerInvestigation).
2. What is [Ft. Detrick] Area B and what materials were disposed there? From EPA & MDE web sites] Area B is roughly 399 acres, and includes 8 landfill/trenched areas, burning pits that have been identified to date. Area B was established as a proving ground in the Army's Biological Warfare program. Later, Area B was used as a disposal area for chemical, biological, and radiological (CBR) material and until 1970 for biological experimentation. Area B has been the primary location of waste management activities for Fort Detrick and is the location of an active municipal landfill, animal farm, former skeet range, former explosives storage area, and former waste disposal/test areas associated with former research activities.

In the late 1940s, the Special Operations Group of Fort Detrick installed a test grid in Area B to test both live and simulant biological warfare (BW) materials. A list of the live agent materials used in Area B is not available, but it is known that simulant materials used included *Bacillus globigii*, *Serratia marcescens*, and *Escherichia coli*. Test animals were buried in trenches or pits located in Area B after autoclave sterilization. Many types of munitions were tested on the test grid in Area B.

Anthrax was buried in Area B. In addition, radiological tracer materials were reportedly buried at three locations in Area B, including radioactive carbon, sulfur, and phosphorous. Two cylinders marked "Phosgene" were also reportedly buried in Area B. Phosgene is considered a lethal chemical agent.

In 1970 and 1971, after the United States outlawed biological research for offensive operations, a decontamination program was initiated for Fort Detrick. Decontamination procedures for residual biological/chemical research materials included autoclave steam sterilization and incineration. Incineration ash was tilled into soil in the northwestern corner of Area B (Pit 13). Research buildings and equipment were also decontaminated, and an extensive wipe sampling program was completed after decontamination. In addition, sewage drainage lines were cut and capped, and drainage systems were filled with hypochlorite solution.

In 1977, severe soil erosion exposed buried scrap materials and created several deep cavities in Area B. The areas were subsequently covered with soil.

In June 2004, a removal action was completed at Area B-11, an Area B chemical disposal area. Activities completed included the removal of contaminated soil, chemical containers, compressed gas cylinders, and laboratory waste. The discovery of live pathogens in medical wastes at Area B -11 caused suspension of all intrusive work at the disposal area. The southwestern portion of Area B contains three known chemical waste disposal pits (Pits 1, 3, and 4), one suspected chemical waste disposal pit (Pit 2), and one ash disposal pit. Area B-11, also known as Pit 11, is reported to have received various types of waste chemicals from Fort Detrick, the National Bureau of Standards, and the Walter Reed Army Medical Center from 1955 to 1970.

Reportedly, eight 55-gallon drums of TCE were disposed of in Pit 1. Wastes disposed of in the pits included metals, wood, general waste from laboratory modifications and building demolition, refuse from housing and animal farm operations, acids and chemicals, incinerated medical waste, waste herbicides and insecticides, phosgene, and animals potentially contaminated by anthrax. Area B-11 is underlain by solution-weathered limestone of the Frederick Formation, a karst formation aquifer. Solution features such as voids were identified in Area B-11 during the installation of monitoring wells. The voids are 10 to 87 feet long and were encountered with the greatest concentration in the first 100 feet of drilling. Drilling in Area B-11 revealed that bedrock is located at 32 to 33 feet below ground.

surface (bgs). The nature of karst conditions in Area B-11 increases the probability of releases to ground water from wastes disposed of in Area B-11. Wastes may have been disposed of directly into karst solution cavities (voids). All of these disposal activities could have resulted in ground water contamination.

The EPA has requested that the Army undertake an Archives Search Report to identify all materials used, tested, and disposed of at Area B over time. Such historical information will aid in determining what potentially could exist at Area B.

3. What contaminants are under investigation ?

The known contaminants in groundwater beneath Area B include tetrachloroethene (PCE) and trichloroethene (TCE). However, under EPA's supervision the Army is conducting a new remedial investigation of the groundwater beneath Area B, which include the Priority Pollutant List. Other pollutant could be identified during the course of this new investigation. The most significant pollutants associated with the Fort Detrick incinerators include the following: hydrogen chloride, particulate matter, carbon monoxide, dioxins and furans, sulfur dioxide, nitrogen oxides, lead, cadmium, and mercury. There are many other known toxic air pollutants that are discharged from incinerators in trace quantities.

4. What are TCE and PCE?

PCE is also known as tetrachloroethylene, a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for tetrachloroethylene include perchloroethylene, PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part tetrachloroethylene per million parts of air (1 ppm) or more, although some can smell it at even lower levels.

The EPA maximum contaminant level for the amount of tetrachloroethylene that can be in drinking water is 0.005 milligrams tetrachloroethylene per liter of water (0.005 mg/L). The Occupational Safety and Health Administration (OSHA) has set a limit of 100 ppm for an 8-hour workday over a 40-hour workweek. The National Institute for Occupational Safety and Health (NIOSH) recommends that tetrachloroethylene be handled as a potential carcinogen and recommends that levels in workplace air should be as low as possible. [Source: ATSDR ToxFAQs accessed 12/29/10, <http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=264&tid=48>]

TCE is Trichloroethylene (TCE), a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. Trichloroethylene is not thought to occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

Some studies with mice and rats have suggested that high levels of trichloroethylene may cause liver, kidney, or lung cancer. Some studies of people exposed over long periods to high levels of trichloroethylene in drinking water or in workplace air have found evidence of increased cancer. Although, there are some concerns about the studies of people who were exposed to trichloroethylene, some of the effects found in people were similar to effects in animals. In its 9th Report on Carcinogens, the National Toxicology Program (NTP) determined that trichloroethylene is "reasonably anticipated to be a human carcinogen." The International Agency for Research on Cancer (IARC) has determined that trichloroethylene is "probably carcinogenic to humans."

The EPA has set a maximum contaminant level for trichloroethylene in drinking water at 0.005 milligrams per liter (0.005 mg/L) or 5 parts of TCE per billion parts water. The EPA has also developed

regulations for the handling and disposal of trichloroethylene. The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 100 parts of trichloroethylene per million parts of air (100 ppm) for an 8-hour workday, 40-hour workweek. [Source: ATSDR ToxFAQs accessed 12/29/10 <http://www.atsdr.cdc.gov/toxfaqs/faq.asp?id=172&tid=30>]

See also the ATSDR website

<http://www.atsdr.cdc.gov/HAC/pha/FtDetrickAreaBGroundwater/FortDetrickPHAFinal12-09-2009.pdf> or click to it from the link on the www.FrederickCountyMD.gov/CancerInvestigation web page under resources.

5. What is Vinyl Chloride and where was it found?

[Source MDE August 2010] Vinyl chloride (VC) is a second generation breakdown product of trichloroethylene (TCE) {TCE-Dichloroethene (1,2-DCE)- VC} and a third generation breakdown product of tetrachloroethylene (PCE) {PCE-TCE- 1,2-DCE-VC}. Both TCE and PCE are principal contaminants found in groundwater at Area B.

VC has been found in the source area near the B-11 pit. In 2007, 21 Area B monitoring wells were sampled with only 1 detection of VC (9.6 ppm, in BMW 56D) near the B-11 pit area. There were no off-site detections of VC. Consistent levels of vinyl chloride (VC) throughout the contaminant plume would indicate that the known contaminants (i.e. TCE, PCE) may be naturally degrading through the process of dehalogenation to a benign endpoint (i.e. ethane) through biologic and natural processes. Certain anaerobic bacteria, principally Dehalococoides ethenogenes, have been shown to effectively accomplish this conversion. The optimum pH range for D. ethenogenes has been reported in scientific literature as neutral to slightly alkaline, i.e., between 7 & 7.5. During the 2007 sampling event, the average pH reported was 7.56 or slightly beyond the optimum pH range. Also, with the exception of the anaerobic pit areas in Area B, the aquifer is oxygenated (i.e., aerobic). For this reason, significant D. ethenogenes activity is unlikely to be detected beyond the pit areas.

6. What toxins are emitted from incinerators in Area A?

[Source: MDE August 2010] Fort Detrick currently has four incinerators at the main base - Area A. They include two medical waste incinerators, each capable of processing up to 0.5 ton per hour medical waste; and two small municipal waste combustors, each capable of processing up to 1.5 tons per hour of municipal solid waste. Each of these units are equipped with rotary atomizing scrubbers designed to control emissions of particulate matter, heavy metals and acid gases. The air emissions from these incinerators are subject to very stringent Federal rules developed under the Clean Air Act (1990), sections 111(d)/129. The Federal rules address the emissions of criteria pollutants (sulfur dioxide, nitrogen dioxide, carbon monoxide, volatile organic compounds, particulate matter, and lead) and non - criteria pollutants such as hydrogen chloride, cadmium, mercury, and dioxins/furans.

With regard to toxic air pollutants (TAPs), screening levels (i.e., acceptable ambient concentrations for toxic air pollutants) are generally established at 1/100 of allowed worker exposure levels. The Maryland Department of Environment has also developed additional screening levels for carcinogenic compounds. The additional screening levels are established such that continuous exposure to the subject TAP at the screening level for a period of 70 years is expected to cause an increase in lifetime cancer risk of no more than 1 in 100,000.

The Fort Detrick incinerators are required to perform routine stack testing in order to demonstrate compliance with both federal and State emission standards. Based on these stack test results, Fort Detrick is in compliance with both the Federal and State regulatory requirements for air emissions. In addition, the same controls would reduce emissions of other unregulated toxic air pollutants.

7. Where does the City of Frederick get its water?

[Source: City of Frederick Annual Drinking Water Quality Report accessed September 2010 and personal communications] There are two types of water sources. They are ground water and surface water. Ground water is from a well and surface water is water from lakes (Lake Linganore), creeks (Linganore Creek), and reservoirs (Fishing Creek). The Monocacy River and Potomac River also provided water. We have both supplies available, however our wells (wells 3,7,9 located on Schifferstadt Blvd) were only in production for 4 months during the 2002 drought. The City of Frederick regularly tests its water supply for regulated and unregulated contaminants. A full report can be found on the City's website - <http://www.cityoffrederick.com/cms/files/dpw/annual-drinking-water-quality-report.pdf>.

8. What agencies are coordinating on the remediation?

Area B ground water and associated sources will be assessed during the Remedial Investigation (RI). The generated data will be shared among Federal, State and Local government agencies (including EPA, ATSDR, MDE and the Health Department, as well as Ft. Detrick). These entities will be in communication regarding all relevant issues and decisions, including those associated with the investigation and any clean-up efforts.

9. What testing is the currently underway?

As part of the new Remedial Investigation, the Army is conducting surface water and sediment sampling to determine whether contamination from Area B has migrated off-site. In the course of completing the new remedial investigation of the groundwater beneath Area B, an analysis will be conducted for a wide range of potential pollutants including metals, semi-volatiles, pesticides, herbicides, and volatiles. Additionally, the Army will be conducting a new dye trace study of the karst geology to identify groundwater flow pathways from Area B. Additionally, the EPA has requested that the Army undertake an Archives Search Report to identify all materials used, tested, and disposed of at Area B over time.

10. Is vapor intrusion a Factor?

[Source: US EPA August 2010] Vapor intrusion (VI) refers to the migration of volatile chemicals from the subsurface into occupied buildings. As a general rule of thumb, the potential for VI of concern exists when structures are within 100 feet (horizontally and vertically) of volatile chemicals in the subsurface. It is proposed that the Army will conduct a vapor intrusion study as part of the new Remedial investigation for Area B. The vapor intrusion study will include the collection of soil gas samples through the foundations of occupied buildings that are known or suspected to be within 100 ft. of the PCE/TCE groundwater plume.

11. What are dioxins and are they being monitored in the vicinity of Ft. Detrick?

[Source: US EPA August 2010] The term "dioxin" refers to a group of chemicals with fairly similar structures, but different cancer potencies. To standardize the different types of dioxins and their propensity to cause cancer, internationally-accepted toxicological practice is to convert each dioxin potency to a concentration that would be equivalent to the most toxic form of dioxin, 2,3,7,8 -TCDD. It is this form (2,3,7,8-TCDD) that is associated with Agent Orange.

There are 7 principal dioxin compounds, 10 furan compounds, and 12 polychlorinated biphenyl (PCB) compounds which act similarly and may pose potential health risks. The compounds in this group (dioxins, furans, and PCBs) have different levels of toxicity, so a particular level of one compound does not necessarily pose the same risk as an equal level of another compound in the group. Dioxins are widespread environmental contaminants that tend to be present in soil at background levels. The background level of dioxins and related compounds in Frederick County has not been determined.

The only dioxin results reviewed by U.S. EPA thus far were submitted by John Bee on behalf of the Kristin Renee White Foundation. These soil samples, when evaluated in terms of 2,3,7,8 -TCDD equivalents (2,3,7,8-TCDDeq), revealed dioxin levels (up to 7.89 parts per trillion [ppt] 2,3,7,8-TCDDeq) that are within the background range expected for rural areas of the U.S. (up to 11 ppt 2,3,7,8 -TCDD). None of the levels reported in the referenced sampling effort exceed U.S. EPA's current residential

clean-up standard for dioxin (1000 ppt 2,3,7,8-TCDDeq), proposed interim Preliminary Remediation Goal (72 ppt 2,3,7,8-TCDDeq) or risk-based concentration for residential exposure (450 ppt 2,3,7,8-TCDD), at an excess cancer risk of 1 in 10,000). As part of the ongoing investigation of Area B, EPA and MDE are discussing how best to conduct dioxin sampling for both on-post and off-post locations. This effort should provide more thorough coverage than the limited dioxin sampling conducted to date, and should capture the extent of dioxin contamination, if any, in the vicinity of the Area B.

12. What groundwater tests need to be completed?

[Source: US EPA August 2010] The Army has in the past conducted dye tests and installed monitoring wells within the Area B property boundaries and reported the findings in several reports. However, EPA and MDE have raised concerns about some of these studies. Additionally, questions still exist regarding the bedrock features and the degree in which groundwater flow is affected by the orientation and connection of the voids and conduits within the bedrock and the flow direction within the deeper portions of the aquifer underlying Area B. New dye studies, installation of wells and sampling and analysis of new and existing wells will be part of the new upcoming Remedial Investigation activities.

13. Were Carroll Creek sampling results presented at the March 23, 2010 RAB meeting?

At the Ft. Detrick Restoration Advisory Board (RAB) meeting, data were presented for Robinson Springs. The values were 7.4 ppb for TCE and 0.8 ppb for PCE. The springs drain into a pond and then into Carroll Creek. It was determined years ago by the Army's testing that by the time the outfall reaches the creek it is well below MCLs or non-detect. Measurements of Carroll Creek in the 90's showed that where springs enter the creek that dilution and volatilization rapidly reduce concentrate ions below MCLs to non-detect within a short distance. Based on the monitoring data it was determined by the Army, MDE and EPA in the partnering meetings years ago that there was not a threat to the public use of Carroll Creek and that there is not any need to restrict access. Both TCE and PCE are not bio-accumulating compounds. The current Area B groundwater workplan includes taking new measurements in Carroll Creek to create a new baseline.

14. How many wells surround Fort Detrick?

Bibliography

EPA History Love Canal

Information on the origins of EPA, historical environmental topics, origins of environmental statutes, environmental disasters like Love Canal and Times Beach, and EPA administrators.

Show more

<https://www.epa.gov/history>

EPA History Love Canal

Links to EPA Press Releases and Articles on Love Canal Superfund Site in Niagara Falls, N.Y

<https://www.epa.gov/history/epa-history-love-canal>

LOVE CANAL | Superfund Site Profile | Superfund Site Information | US EPA

EPA's Superfund Site Information for LOVE CANAL

<https://cumulis.epa.gov/supercpad/CurSites/csinfo.cfm?id=0201290&msspp=med>

LOVE CANAL MONITORING PROGRAM. VOLUME 1 | Science Inventory | US EPA

This report summarizes the prime contractor activities during the monitoring phase of the Love Canal project. Since GCA Corporation was only responsible for data collection, no analytical results appear in this report. The program involved a multifaceted sampling and analytical effort designed to detect and quantify a variety of trace metals, volatile organics, pesticides and other compounds in soil, sediment, air, biota, and water samples. The principal purpose of these activities was to provide data with which EPA could assess the extent of environmental contamination in the Love Canal Area. Since the area declared as a National Emergency was extended from those homes directly surrounding the Love Canal dumpsite to a more general area on May 21, 1980, it had been determined that the overall exposure of residents must be established as quickly as possible. The program, therefore, was on an extremely tight schedule with field sampling activities to be completed by October 31, 1980. GCA organized its efforts into seven technical elements, each of which is discussed.

Show more

https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=ORD&dirEntryId=45400

Love Canal Monitoring Program-final Report Volume 1

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000TMG3.txt>

Love Canal Monitoring Program, Volume 1 Final Report

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000IA1W.txt>

Environmental Monitoring at Love Canal: Interagency Review

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9100WNYH.txt>

Environmental Monitoring at Love Canal: Interagency Review

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9101HFLJ.txt>

Environmental Monitoring At Love Canal Volume 1

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000AFYN.txt>

Selected Historical Press Releases, 1970-1998

Links to EPA Selected Historical Press Releases, 1970-1998. Releases shown below and dated mid-1994 or later are not duplicated in EPA newsroom database, y los comunicados de prensas.

Show more

<https://www.epa.gov/history/selecte> LIPARI LANDFILL | Superfund Site Profile | Superfund Site Information | US EPA

EPA's Superfund Site Information for LIPARI LANDFILL

<https://cumulis.epa.gov/supercpad/CurSites/csinfo.cfm?id=0200557&msspp=med>

Superfund Record of Decision: Lipari Landfill, NJ

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9100SA8I.txt>

Superfund Record of Decision: Lipari Landfill, NJ

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9100SB12.txt>

Lipari Landfill Superfund Site Construction Project Scheduled for this Summer Cleanup Activities

Continue Mantua, New Jersey Summer 2011

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100BNQJ.txt>

EPA History LiPari Landfill <https://www.epa.gov/landfills>

Superfund Record of Decision: Lipari Landfill, NJ (Second Remedial Action, 09/30/85)

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9100SAHA.txt>

Municipal Solid Waste Landfills

this page describes municipal solid waste landfills

<https://www.epa.gov/landfills/municipal-solid-waste-landfills>

SUPERFUND RECORDS OF DECISION UPDATE JULY 31, 1985

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=94007H46.txt>

Landfill Methane Outreach Program (LMOP)

The U.S. EPA's Landfill Methane Outreach Program is a voluntary program that works cooperatively with industry stakeholders and waste officials to reduce or avoid methane emissions from landfills. Landfill gas contains methane, a potent greenhouse gas.

Show more

<https://www.epa.gov/lmop>

Superfund Sites in Reuse in New Jersey

Noteable sites in reuse and continued use in New Jersey include American Cyanamid Co., Lipari Landfill, NL Industries, Diamond Alkali Co., Welsbach & General Gas Mantle, Former Kil-Tone Company, Delilah Road, Ciba-Geigy Corp., and Ringwood Mines/Landfill.

Show more

<https://www.epa.gov/superfund-redevelopment/superfund-sites-reuse-new-jerseyd-historical-press-releases-1970-1998>

National Priorities List (NPL) Sites - by State

View the National Priorities List (NPL), organized by state. <https://www.epa.gov/superfund/national-priorities-list-npl-sites-state>

Superfund

EPA's Superfund program is responsible for cleaning up some of the nation's most contaminated land and responding to environmental emergencies, oil spills and natural disasters in order to protect public health and the environment.

<https://www.epa.gov/superfund>

EPA Updates the National Priorities List to Clean Up Contamination and Protect Communities

EPA News Release EPA Updates the National Priorities List to Clean Up Contamination and Protect Communities

<https://www.epa.gov/newsreleases/epa-updates-national-priorities-list-clean-contamination-and-protect-communities-0>

[/www.epa.gov/superfund/proposed-national-priorities-list-npl-sites-proposed-date](https://www.epa.gov/superfund/proposed-national-priorities-list-npl-sites-proposed-date)

**Phase I ENVIRONMENTAL SITE ASSESSMENT
TRANSACTION SCREEN QUESTIONNAIRE**

Please answer the following questions regarding the *property* and note any observations of site conditions that may cause environmental impact or concern. Use good faith efforts in answering the questions. All answers should be given to the best of the *preparer's* knowledge. The most knowledgeable person available should be chosen to answer the questions "to the best of his/her knowledge."

The *preparer* should document "unknown" answers and evaluate it in light of the other information obtained in the *transaction screen process*, including, in particular, the site visit and the government records historical sources inquiry. A presumption exists that further inquiry is necessary if an affirmative answer is given to a question or because the answer was unknown or no response was given

All Appropriate Inquiries," (C.F.R.Part 312.) The *preparer* of the *transaction screen questionnaire* must complete and sign the questionnaire as provided at the end of the questionnaire.

Preparers represent that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

Preparers	The Owner questionnaire answers were provided was completed by:	The Occupant questionnaire answers were provided by:
Name Title		
Firm		
Address		
Phone Number		
Date		
Role (s) at the site		
Number of years at the site		
Relationship to use (e.g. principal, employee, agent, consultant)		

	Government Records and Historical Sources questionnaire answers were provided was completed by:	The Site Visit questionnaire answers were provided by:
Name Title		
Firm		
Address		
Phone Number		
Date		
Role (s) at the site		
Number of years at the site		
Relationship to use (e.g. principal, employee, agent, consultant)		

Transaction Screen Questionnaire

Persons to Be Questioned-The following questions should be asked of (1) the current owner of the property, (2) any major occupant of the property or, if the property does not have any major occupants, at least 10 % of the occupants of the property, and (3) in addition to the current owner and the occupants identified in (2), any occupant likely to be using, treating, generating, storing, or disposing of hazardous substances or petroleum production or from the property. A major occupant is any occupant using at least 40 % of the leasable area of the property or any anchor tenant.

Description of Site
(applicable)

Address:

Occupants (if applicable)

Observations during Site Visit

1. Property use?

Is the property used as for industrial use, a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable circle which and explain)?

2 Is any adjoining property used for industrial use, a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which and explain)?

3. Did you observe evidence or do you have any prior knowledge that the property has been used for an industrial use in the past?

4. Solid and hazardous waste at the facility - Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal stored on or used at the property or at the facility?

5. Solid and hazardous waste adjacent to the facility - Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal stored on or used at the property or at the facility?

6. Any industrial drums (typically 55 gal (208 L)) or sacks or containers of chemicals located on the property or at the facility? Did you observe evidence or do you have any prior knowledge?

7. Fill dirt has been brought onto the property that is of an unknown origin? Did you observe evidence or do you have any prior knowledge?

8. Pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal? Are there currently or previously?

9. Stained soil on the property? Is there currently or previously?

10. Registered or unregistered storage tanks (above or underground) located on the property? Are there currently or previously?

11. Any vent pipes, fill pipes?

Did you observe evidence or do you have any prior knowledge that there have been previously?

12. Evidence of leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property? Is there currently or previously?

Any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring drains, walls, ceilings or exposed grounds on the property? Did you observe evidence or do you have any prior knowledge that there have been previously.

13. Is or was the property served by a private well or non-public water system? is there evidence of contaminants have been identified in the well or system that exceed guidelines applicable to the water system?

14. Any knowledge of environmental liens or governmental notification relating to past or recurrent violations of environmental laws?

15. Any knowledge of past existence of hazardous substances or petroleum products dumped or spilled on property or adjacent to the property?

Any knowledge of environmental violations with respect to the property or any facility located on the property?

16. Presence of hazardous substances or petroleum products on, or contamination of, the property or any report that recommended further assessment of the property? Does the owner or occupant of the property have any knowledge of any environmental site assessment of the property or facility?

17. Does the owner or occupant of the property know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property?

18. Does the property discharge waste-water (not including sanitary waste or stormwater) onto the property or adjacent to the property and/or into a storm water system?

19. Did you observe evidence or do you have any prior knowledge that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been dumped above grade, buried and/or burned on the property?

20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?

21. Do any of the following federal, state, or tribal government record systems list the property? or any property within ¼ mile search:

Do you have any knowledge of

Federal NPL or Delisted NPL sites	
Federal CERCLIS site	
Federal RCRA facilities	
Federal RCRA generators	
Federal ERNS sites	
Hazardous waste sites	
Prior investigations or remediation:	
Landfill and/or solid waste disposal	
Leaking storage tanks	
Registered storage tank lists	
Institutional controls	
Voluntary cleanup sites	
Brownfield sites	

22. Based upon a review of fire insurance maps (10.2.3) or local street directories (10.2.3), all as specified in the guide, are any buildings or other improvements on the property or on an adjoining property identified as having been used for an industrial use or uses likely to lead to contamination of the property?

Signature _____ Name _____ Date _____
 Title _____

Please provide:

x	Engineering Construction Drawings: Reports Maps	
x	Construction Applications and Engineering Reports	
x	Soil Borings; Location of Monitor Wells Supply Wells; Well Logs	
x	Architectural drawings for basements, utility trenches	
x	Building Permits, UST and Demo Permits, Occupancy Permits, Building Violations	
x	Tax Map, Planning Map and pertinent Ordinances, Land Use Designations	
x	Zoning Map	
x	Storm Sewer Maps, Diameter, Manholes, Discharge Location	
x	Sanitary Sewer Maps Diameter, Manholes, Discharge Location	
x	Prior Septic System Location	
x	Historical Maps showing past buildings and structures Aerial Maps	
x	Surrounding Historical Land Use Maps	
x	Reports of Spills and Past Manufacturing Processes Waste Disposal Practices	
x	Environmental Maps, Reports, Violations, Flood and Wetlands Map, Sample Results	
x	Area History	
x	Police and Emergency Services Responses	
x	Utility Maps, Suppliers and Dates of Utility Hookup,	