

**Munitions and Explosives of Concern Necessitating a Site Investigation, Hazard Assessment,
Remediations for Munitions at the Old Atlas Powder Farm
at Development Plan 10-C-24-DP**

Property Information

Location:

2814 TIPTON STATION RD
South side of Tipton Station Rd, east of Lowland Ln
Commission District 9

Size

153.15 acres

Presently Described: Agriculture/Forestry/Vacant Land

Proposed: Detached residential subdivision

Assembled by Neighbor Across Street since year 2000:

Victoria Kay
2921 Tipton Station Road
Knoxville TN 37920

Author Note

I believe there are Munitions and Explosives of Concern at the old Atlas Powder Farm at 2814 Tipton Station Road which was zoned Heavy Industrial from 1970's through early 2000's. I have included some of the titles and deeds that had covenants conveyed which stated no houses would be built any closer to the powder magazines (which are still there and I have included photographs of these powder magazines taken recently) on the property than the house already on tract 3. They must have realized the hazardous materials on the site from Atlas Powder Farm. It was downzoned to Agriculture in the early 2000's, and now being considered for Planned Residential. However, I believe the prior use of this 153.15 acres is very concerning for any repurposing. I believe a type of Hazard Assessment, site Investigation and Remediation for Munitions should be conducted before any repurposing of this land is approved. I am writing all Knox County Planning Commissioners and Knox County Commissioners so they have awareness to the historical use of this land that poses potential risk of hazardous material on this site for any future use of this property.

Timeline

1955 Lots of family sell 2814 Tipton Station Road to Atlas Powder Company

1961 Atlas Powder Company Changes it's name to Atlas Chemical Industries

1971 Acquired by ICI (Imperial Chemical Industries) America's Inc.

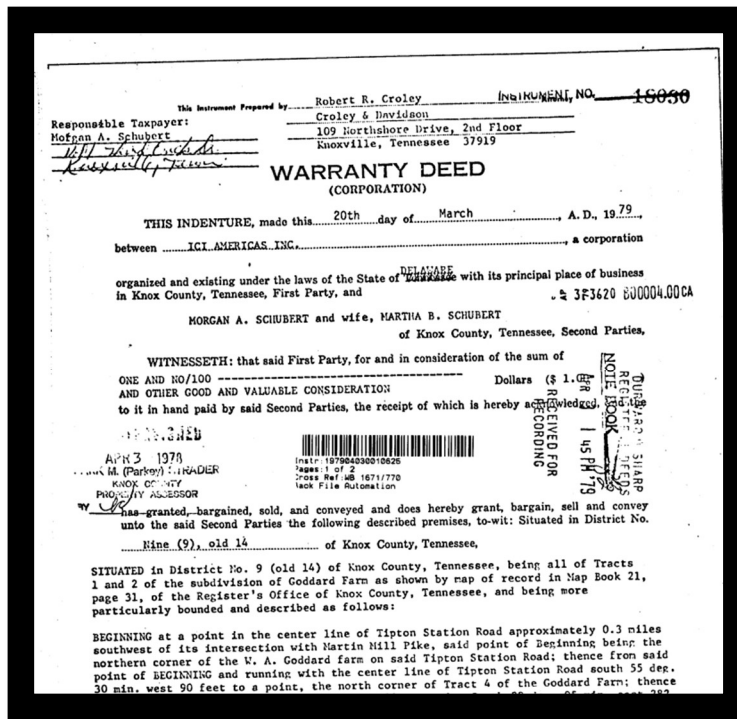
1979 ICI (Imperial Chemical Industries) America's Sold the property to Schubert

https://www.kgis.org/output/roddoc_f63ae403-5478-467b-b97a-b0c242c850f4.pdf

1970's this property was zoned Heavy Industrial

2000's this property was down zoned to Agriculture

2024 this property was zoned to Planned Residential



Atlas Powder Farm

Please look at these titles/deeds. It appears that this property was tract one of four tracts that were Goddard Farms before it was subdivided into 4 tracts. The KGIS website puts tracts one and two together, but these are two separate tracts, based upon a map recorded in Map Book 21, page 31. Tract one and two were originally sold to Atlas Powder Co. on January 28, 1955. Something like 25 heirs of WA Goddard had to sign the warranty deed.

Atlas Powder changed its name to Atlas Chemical Industries, Inc. in 1961 and then changed its name to ICI Americas Inc. in 1971. ICI Chemical Industries sold the two tracts of property to Morgan and Martha Schubert on March 20, 1979. Atlas Powder had the chance to buy tract three of Goddard Farm, but declined the option. Tract three is the property located at 7730 Goddard Road, now owned by Douglas and Marsha Carter, as noted by the KGIS Website.

There are some interesting covenants that run with the land, in these two deeds. In the deed to Atlas Powder, no houses were allowed to be built any closer to the powder magazines than the

dwellings located on tract three at the time of the conveyance. This covenant affected tract three no matter in whom title was vested.

It is apparent that the powder magazines were considered to be a danger. The time the deed was written with the implicit restrictions, Atlas Powder was the owner of tract one and two.

There are covenants that run with the land mentioned in the 1955 deed, affecting tract one, but they are more clearly laid out in 1979 deed which states that the conveyance is subject to "Riparian rights of downstream owners of property to the uninterrupted flow of Stock Creek."

TNT is definitely hazardous waste. Demolition of the dynamite storage magazines on this property could result in TNT contamination in human receptors, air, and ground water.

After a quick look into "Atlas Powder" and "ICI America's Inc", I found many links to hazardous waste sites and Superfund sites that are costing millions to reclaim and repurpose, if possible. Most of the lands end up with deed restrictions preventing residential use.

I truly believe this plot of land was zoned "Heavy Industrial" in the 1970's because of the powder magazines and hazardous risks on the property.

Knox County Planning Commission and Knox County Commission should conduct a thorough study of this land before allowing residential use.

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See Warranty # 1662-89484



THIS INDENTURE, made this 28th day of January, 1955, between Mrs. Mable Goddard Ellis, Mary Adeline Goddard, Frank W. Goddard, Harry G. Goddard, William Kenneth Goddard, Anna Belle Hall, Ruby Hall Atchloy, Irma Hall Bodenheimer, Era Hall Gerwin, James H. Goddard, all of Knoxville, Knox County, Tennessee, E. F. Goddard of Dandridge, Tennessee, H. O. Goddard of Louisville, Tennessee, Andrew O. Goddard of Dayton, Ohio, Vernon E. Goddard of Kingston, Tennessee, Merle A. Hall of Cleveland, Tennessee, Ruth Goddard Buckles, Harry D. Goddard and Carolyn Stengel Goddard, widow of E. T. Goddard, all of Lincoln, Illinois, William Goddard and James C. Goddard of Mt. Pulaski, Illinois, Shell G. Goddard of Washington, D.C., heirs of W. A. Goddard, deceased, Paul D. Goddard, of Dandridge, Tennessee, and Harry G. Goddard of Knoxville, Tennessee, as trustees for the heirs of W. A. Goddard as shown by "Trust Agreement, Appointment of Trustees and Conveyance of Title to Trustees" of record in Knox County Register's Office in Deed Book 957, page 377, all being parties of the first part and Atlas Powder Company, a corporation organized and existing under the laws of the State of Delaware, party of the second part.

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of Twenty-One Thousand Dollars (\$21,000) to them in hand paid by the said party of the second part, the receipt of which is hereby acknowledged, have granted, bargained, sold, conveyed, and do hereby grant, bargain, sell and convey unto the said party of the second part, the following described premises, to-wit:

Situated in District No. 9 (Old 14) of Knox County, Tennessee, being all of Tracts 1 and 2 of the subdivision of Goddard Farm as shown by map of record in Map Book 21, page 31, of the Register's Office of Knox County, Tennessee, and being more particularly bounded and described as follows:



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Beginning at a point in the center line of Tipton Station Road approximately 0.3 miles southwest of its intersection with Martin Mill Pike, said point of beginning being the northern corner of the W. A. Goddard farm on said Tipton Station Road; thence from said point of beginning and running with the center line of Tipton Station Road South 55 deg. 30 min. West 90 feet to a point, the north corner of Tract 4 of the Goddard Farm; thence with the said Tract 4 the following three calls, to-wit: South 29 deg. 05 min. East 282 feet to a concrete monument; thence South 54 deg. 45 min. West 257 feet to a concrete monument; thence North 30 deg. 35 min. West 286 feet to a concrete monument; thence leaving the said Tract 4 and running with the original line of the W. A. Goddard farm South 55 deg. 30 min. West 1,125 feet to a 24 inch white oak; thence South 48 deg. 45 min. East 1,542 feet to a post; thence South 4 deg. 35 min. West 372 feet to a post; thence South 3 deg. 55 min. West 775 feet to a 20 inch post oak; thence South 29 deg. 30 min. East 397 feet to a point in the center of Stock Creek; thence South 31 deg. East 565 feet to a poplar stump; thence South 26 deg. East 845 feet to a point; thence South 32 deg. East 90 feet to an iron pin; thence North 62 deg. East 615 feet to a point; thence North 73 deg. East 525 feet to a point; thence North 60 deg. East 560 feet to a post; thence North 50 deg. West 170 feet to an iron pin; thence North 2 deg. East 155 feet to a post; thence North 84 deg. East 200 feet to a stone; thence North 7 deg. West 400 feet to a point; thence North 33 deg. West 500 feet to a point; thence North 24 deg. West 280 feet to a point in the center of Stock Creek and in the line of Tract 3 of the Goddard Farm; thence with Tract 3 and the center of Stock Creek the following calls, to-wit: South 52 deg. 30 min. West 69 feet, North 88 deg. West 185 feet, South 78 deg. 40 min. West 290 feet; thence leaving Stock Creek but still running with the line of Tract 3 North 47 deg. West 508 feet to a concrete monument; thence North 14 deg. 30 min. West 678 feet to a concrete monument; thence North 21 deg. 10 min. East 391 feet to a 20 inch ash; thence leaving Tract 3 and running with the original line of W. A. Goddard Farm North 37 deg. 35 min. West 1464 feet to a point; thence North 37 deg. 20 min. West 251 feet to the point of beginning, containing 155.71 acres.

First parties further convey, sell and release any and all rights in and to the private roadway existing on Tract 1 of the Goddard Farm as shown by said Map of record in the Register's Office with the exception that a right of way for driveway purposes for the benefit of the owners or occupants of Tract 4 is reserved across the portion of said private road situated immediately to the northeast of the northeastern line of said Tract 4.

There is further conveyed herewith a covenant, agreement and understanding that no dwelling house or building of any description to be used as a dwelling house will be erected or located on the property to be hereinbelow described closer to the now existing powder magazines of the Atlas Powder Company



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than the dwellings that are presently located on the said property to be hereinbelow described. This covenant and restriction is to run with the following property in whomsoever the title may be vested.

situated in District Nine (Old 14) of Knox County, Tennessee, being Tract 3 of the subdivision of the Goddard Farm as shown by map of record in Map Book 21, page 31, in the Register's Office of Knox County, Tennessee, and being more particularly bounded and described as follows:

BEGINNING at a concrete monument on the south side of Goddard Road and in the eastern line of the W. A. Goddard Farm; thence from said point of beginning south 56 deg. 45 min. East 150 feet to a concrete monument; thence South 2 deg. 50 min. East 310 feet to a cedar; thence South 8 deg. 35 min. West 91 feet to a rock; thence South 3 deg. 10 min. West 172 feet to a stake; thence South 11 deg. 50 min. East 126 feet to a point in the center of Stock Creek at the west edge of a bridge; thence with the center of Stock Creek South 71 deg. 40 min. West 340 feet to a point in the center of said Creek, corner of Tract 2 of the Goddard Farm; thence with the center of Stock Creek and Tract 2 the following calls, to-wit: South 52 deg. 30 min. West 69 feet, North 88 deg. West 185 feet, South 78 deg. 40 min. West 290 feet; thence leaving Stock Creek and running with Tract 1 North 47 deg. West 508 feet to a concrete monument; thence North 14 deg. 30 min. West 678 feet to a concrete monument; thence North 21 deg. 10 min. East 391 feet to a 20 inch ash; thence leaving Tract 1 and running with the original line of the W. A. Goddard Farm North 89 deg. 30 min. East 745 feet to a post; thence South 14 deg. 15 min. East 208 feet to a post; thence North 78 deg. 35 min. East 56 feet to a walnut; thence South 45 deg. 50 min. East 315 feet to a concrete monument in the north side of Goddard Road; thence crossing Goddard Road North 77 deg. East 25 feet to the point of beginning, containing 33.56 acres.

Further the party of the second part shall have the refusal of purchase of the above described property of the party of the first part designated as Tract 3 or any portion thereof if the property shall be offered for sale by the parties of the first part. The purchase price and terms of sale to be equivalent to those obtained by first parties from a proposed purchaser. The parties of the first part in event that they decide to sell and obtain a bona fide purchaser agree to give the party of the second part written notice of their opportunity and intention to sell the property and party of the second part shall

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have thirty (30) days from receipt of said notice either to exercise or waive said right of refusal.

The parties of the first part hereby grant, bargain, sell, and convey unto the said party of the second part the property, as hereinabovescribed with the hereditaments and appurtenances thereto appertaining, hereby releasing all claims to homestead and dower therein. TO HAVE AND TO HOLD the said premises to the said party of the second part, its successors and assigns forever.

And the said parties of the first part for themselves and for their grantors, heirs, executors, and administrators do hereby covenant with the said party of the second part, its successors and assigns that they are lawfully seized in fee simple of the premises above conveyed and have full power, authority, and right to convey the same, that said premises are free from all encumbrances except a flowage easement to the Tennessee Valley Authority as shown by instruments of record in Deed Book 642, page 526 and Deed Book 647, page 555, of record in the Register's Office of Knox County. Also, an easement along Tipton Station Road in favor of the Tennessee Public Service Corporation, or its successors or assigns, for an electric distribution system and for the State and County taxes for the year 1955, to be prorated between the parties.

That the said parties of the first part will forever warrant and defend the said premises and the title thereto against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands and seals the day and year first above written.

Mrs. Mable Goddard Ellis (L.S.)
Mrs. Mable Goddard Ellis
Mary Adeline Goddard (L.S.)
Mary Adeline Goddard

4
4



<u>Frank F. Goddard</u> (L.S.)	✓	4
<u>Harry J. Goddard</u> (L.S.)	✓	4
<u>William Kenneth Goddard</u> (L.S.)	✓	4
<u>Anna Belle Hall</u> (L.S.)	✓	4
<u>Ruby Hall Atchley</u> (L.S.)	✓	4
<u>Irma Hall Bodenheimer</u> (L.S.)	✓	4
<u>Era Hall Gorvin</u> (L.S.)	✓	4
<u>James H. Goddard</u> (L.S.)	✓	4
<u>E. F. Goddard</u> (L.S.)	✓	
<u>E. F. Goddard</u> (L.S.)	✓	4
<u>H. O. Goddard</u> (L.S.)	✓	4
<u>Vernon E. Goddard</u> (L.S.)	✓	4
<u>Merle A. Hall</u> (L.S.)	✓	4
<u>Ruth Goddard Buckles</u> (L.S.)	✓	4
<u>Harry D. Goddard</u> (L.S.)	✓	4
<u>* Carolyn Stengel Goddard</u> (L.S.)	✓	4
<u>Andrew O. Goddard</u> (L.S.)	✓	4
-5- ANDREW O. GODDARD		



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William E. Goddard (L.S.) ✓ ✓
 William E. Goddard
James C. Goddard (L.S.) ✓ ✓
 James C. Goddard
Shell C. Goddard (L.S.) ✓ ✓
 Shell C. Goddard
Paul W. Goddard (L.S.) ✓ ✓
 Paul W. Goddard
 _____ (L.S.)
 Harry G. Goddard

STATE OF Tennessee
Jefferson County.

Personally appeared before me Ruth Swann Goddard a Notary Public in and for said County the within named bargainers Paul W. Goddard and E. F. Goddard

with whom I am personally acquainted, and who acknowledged that they executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 7 day of February, Nineteen Hundred and 55.

Ruth Swann Goddard
Notary Public
my com. expires ~~to 4-20~~ Jan 20, 1958

STATE OF Tennessee
Knox COUNTY

Personally appeared before me Ruth Swann Goddard a Notary Public in and for said County the within named bargainers individually and as trustee Mr. M. L. Goddard, Ella May Goddard, Edna Goddard, F. W. Goddard, Harry H. Goddard, Kenneth Goddard, Wanda Bell Goddard, Ruby Hall Goddard, Emma Nell Goddard, Mrs. Hall Kesim, James H. Goddard with whom I am personally acquainted, and who acknowledged that they executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 9th day of March, Nineteen Hundred and Fifty-five.

Ruth Swann Goddard
Notary Public
my com. exp. June 20, 1958 State at Large

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STATE OF Tennessee
Blount COUNTY

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Personally appeared before me Ruth Sweeney Goddard, a
at large for the State of Tennessee
Notary Public in and for said County, the within named bargainer
H.C. Goddard

with whom I am personally acquainted, and who acknowledged that
they executed the within instrument for the purposes therein
contained.

Witness my hand and official seal at office, this 9 day
of March, Nineteen Hundred and Fifty five
my Commission expires Jan. 20, 1958
Ruth Sweeney Goddard
Notary Public
State at Large

STATE OF Tennessee
Knox COUNTY

Personally appeared before me Ruth Sweeney Goddard, a
at large for the State of Tennessee
Notary Public in and for said County, the within named bargainer
Vernon E. Goddard, with whom I am personally acquaint-

ed, and who acknowledged that he executed the within instrument
for the purposes therein contained.

Witness my hand and official seal at office, this 17 day
of March, Nineteen Hundred and Fifty five
my Commission expires Jan. 20, 1958
Ruth Sweeney Goddard
Notary Public
State at Large

STATE OF Illinois
Rogan COUNTY

Personally appeared before me Garville, a
Notary Public in and for said County the within named bargainer

Carolyn Steyerl Goddard, with whom I am personally acquaint-
ed, and who acknowledged that she executed the within instrument
for the purposes therein contained.

Witness my hand and official seal at office, this 29th day
of March, Nineteen Hundred and Fifty five
my Commission Expires Feb. 26th 1957
Garville
Notary Public



STATE OF Del

Logan COUNTY

Personally appeared before me E. Leander State, a Notary Public in and for said County the within named bargainer James S. Haddock, with whom I am personally acquainted, and who acknowledged that he executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 30th day of March, Nineteen Hundred and 55.

E. Leander State
Notary Public



STATE OF Del

Logan COUNTY

Personally appeared before me E. Leander State, a Notary Public in and for said County the within named bargainer Harry D. Haddock, with whom I am personally acquainted and who acknowledged that he executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 30th day of March, Nineteen Hundred and 55.

E. Leander State
Notary Public



STATE OF Del

Logan COUNTY

Personally appeared before me Richard Hayes, a Notary Public in and for said County the within named bargainer Ruth G. Buehler, with whom I am personally acquainted, and who acknowledged that she executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 30 day of March, Nineteen Hundred and 55.

Richard Hayes
Notary Public





STATE OF California
Los Angeles COUNTY

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Personally appeared before me James C. Peters, a Notary Public in and for said County the within named bargainer William E. Hubbard with whom I am personally acquainted, and who acknowledged that he executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 9th day of April, Nineteen Hundred and 55.
James C. Peters
Notary Public
My Commission Expires Sept. 15, 1958

STATE OF Ohio
Montgomery COUNTY



Personally appeared before me F. W. Kell, a Notary Public in and for said County the within named bargainer Andrew R. Goodland, with whom I am personally acquainted, and who acknowledged that he executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 11 day of April, Nineteen Hundred and 55.
F. W. Kell
Notary Public
My Commission expires Jan 11, 1957

STATE OF Illinois
Bond COUNTY



Personally appeared before me Amy Sample, a Notary Public in and for said County the within named bargainer Will A. Hall, with whom I am personally acquainted, and who acknowledged that he executed the within instrument for the purposes therein contained.

Witness my hand and official seal at office, this 19th day of April, Nineteen Hundred and 55.
Amy Sample
Notary Public
My Commission Expires July 11, 1955



STATE OF Tennessee
Jefferson COUNTY

Personally appeared before me Ruth Swann Holland,
Notary Public in and for said County the within named bargainer/
Shel C. Holland

_____, with whom I am personally ac-
quainted, and who acknowledged that they executed the within
instrument for the purposes therein contained.

Witness my hand and official seal at office, this 23 day
April, Nineteen Hundred and Fifty Five
Ruth Swann Holland
Notary Public



Received the 13 day of June, 1955 at 10⁰⁴ State of Tennessee

STATE OF Tennessee
Blair White Register

Personally appeared before me _____, a
Notary Public in and for said County the within named bargainers

_____, with whom I am personally ac-
quainted, and who acknowledged that they executed the within
instrument for the purposes therein contained.

Witness my hand and official seal at office, this ____ day
of _____, Nineteen Hundred and _____.

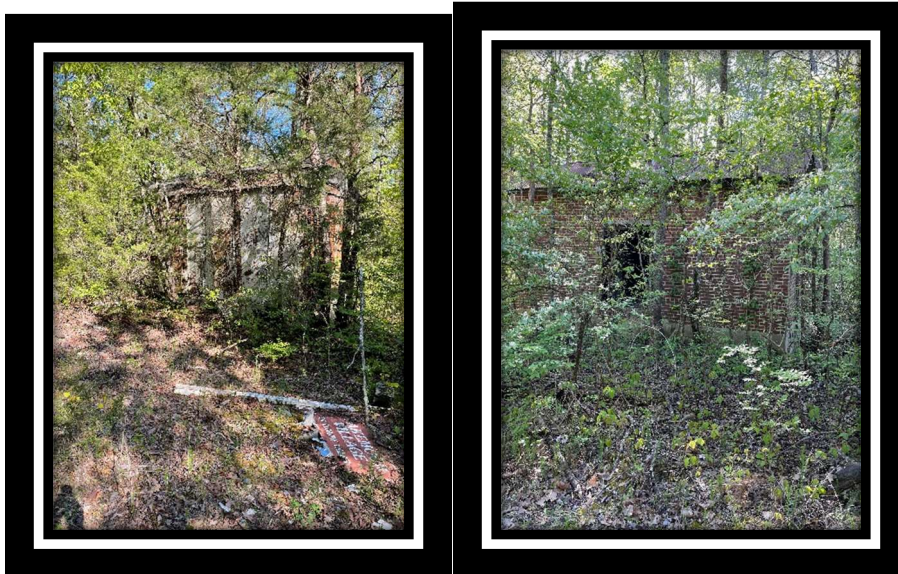
Notary Public

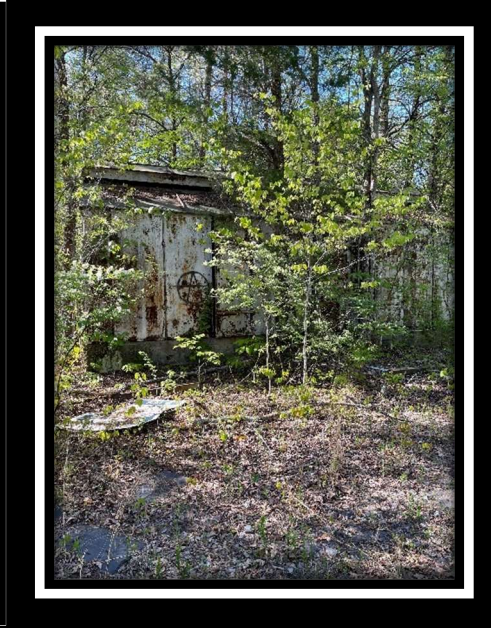
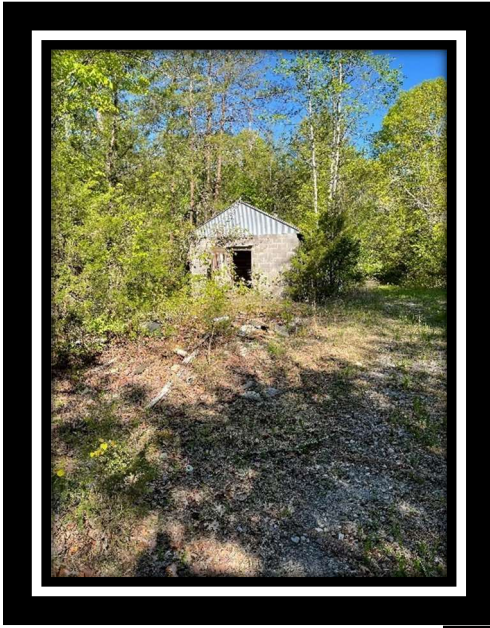


- Atlas Powder Farm is where they manufactured explosives with access roads off Tipton Station Road and at end of Goddard Road.

Atlas Powder Company purchased this property in 1955 and later in 1916 changed it's name to Atlas Chemical Industries. In 1971 The owner of this property became ICI America's Inc, which later sold the property to Shubert family in 1979

The Powder Magazines still remain on the property and you can tell from these pictures taken Douglas Carter when a surveyor was curious about the access road on his property to the old Atlas Powder Farm in 2024 on 7730 Goddard Road, now owned by Douglas and Marsha Carter, as noted by the KGIS Website. Please review the powder magazines of Atlas Powder Farm, Atlas Chemical Industries, later ICI Americas Inc on the following







- WIKIPEDIA: Atlas Powder Company and Hercules competed with DuPont in the manufacture of dynamite and black powder.^[5] It purchased Giant Powder Company in 1915, which continued to operate a production facility at [Point Pinole](#) until 1960.^[3] By 1919, Atlas Powder Company became a military supplier.^[6] During the years leading up to [World War I](#), it was also Britain and France's main supplier of explosives.^[7] It delivered 37 million pounds of [ammonium nitrate](#) as well as acids and nitro cotton.^[7] It became one of the five major companies that served the American munitions market.^[4] The company worked for the U.S. government. An example was its operation of a plant in Maryland, which was built by the [United States Ordnance Department](#).^[8] This facility produced 452,000 pounds of ammonium nitrate.^[8] Along with Hercules Powder Company and DuPont Company, Atlas Powder Company also supported the [Allied](#) armies during [World War II](#).^[9]

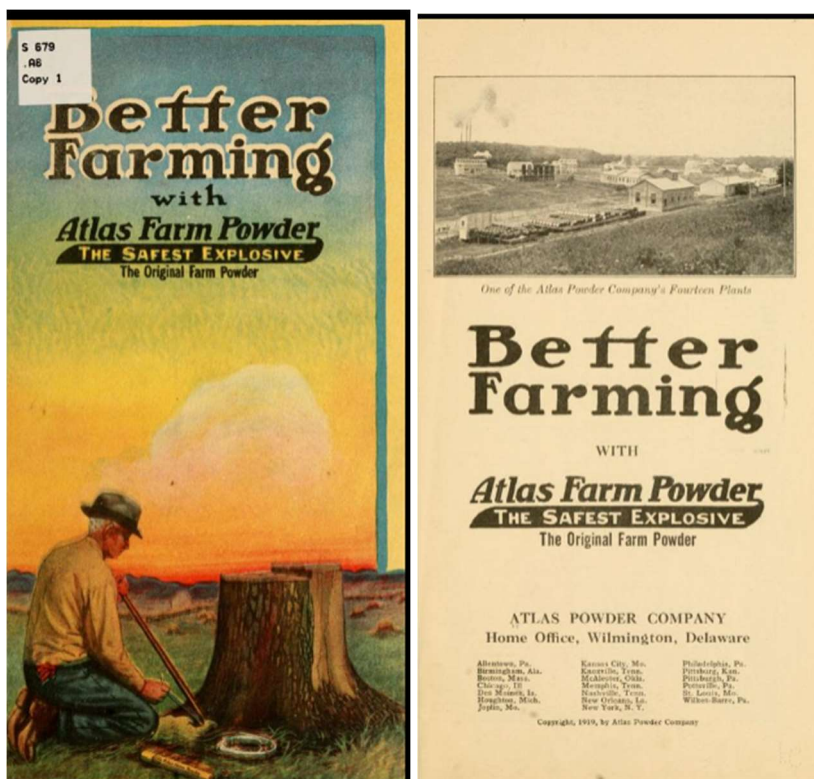
Employment at Atlas reached its greatest peak during this period, reaching 1,617 in 1947.^[6] This number declined with the decreasing use of [anthracite](#).^[6] Atlas Powder Company was renamed as Atlas Chemical Industries, which became a corporate predecessor of [AstraZeneca](#), through an acquisition in 1971 by [Imperial Chemical Industries](#).^[10]

- Repository: Manuscripts and Archives Creator: Atlas Powder Company Title: Atlas Powder Company records ID: 1516 Date [inclusive]: 1868-1958, bulk 1912-1958 Physical Description: 104 Linear Feet Language of the Material: English .

Abstract: Incorporated in 1912, **Atlas Powder Company** functioned as an independent explosives and chemicals company until 1971, when it was purchased by **Imperial Chemical Industries Limited (U.K.)** and became its American affiliate under the name **ICI Americas, Inc.** The collection consists of minutes, reports, and correspondence from Atlas in addition to both predecessor and subsidiary companies.

Manuscripts and Archives PO Box 3630 Wilmington, Delaware 19807 Business Number: 302-658-2400 askhagley@hagley.org URL: <http://www.hagley.org/library>

- From the Library of Congress, an original Pamphlet about the “Farm Powder” made by Atlas Powder Farm: <https://www.loc.gov/resource/gdcmassbookdig.betterfarmingwit00atla> (Better farming with Atlas Farm Powder, the safest explosive, the original farm powder., Library of Congress)



Explosive Dangers and Hazardous Waste Clean Ups from ICI Explosives USA, ICI Americas Inc., Atlas Powder, etc.

1. According to the EPA, sites, where dynamite and explosives were manufactured, packed, and loaded, are sources of the highest exposures to TNT. This would

indicate that a hazardous assessment for munitions and explosives should be conducted at the location of 153.15 acres located at 2814 Tipton Station Road, Knoxville TN 37920 before any future use of the land is determined.

TNT

“The toxicity of TNT to humans was well documented in the 20th century, with more than 17,000 cases of TNT poisoning resulting in more than 475 fatalities from manufacturing operations during World War I (ATSDR 1995; Bodeau 1993).

The primary routes of exposure in manufacturing environments are inhalation of dust and ingestion and dermal sorption of TNT particulates; significant health effects can include liver necrosis and aplastic anemia (ATSDR 1995; HSDB 2012).

The highest exposures to TNT have been found in areas around Army ammunition plants where these explosives are manufactured, packed, loaded or released through demilitarization of munitions (ATSDR 1995).”

https://19january2017snapshot.epa.gov/sites/production/files/2014-03/documents/ffrrofactsheet_contaminant_tnt_january2014_final.pdf

2. Hazardous Waste Cleanup: ICI Explosives USA Incorporated (Formerly: Expert Management, Incorporated) in Reynolds, Pennsylvania (EPA) Superfund Site Information ICI AMERICAS INC. (EPA ID: PAD000797928)

Clean Up Status: After prior removals of hazardous wastes and contaminated soils and several groundwater investigations at the former ICI Explosives USA Inc. facility, the final remedy is complete and consists of institutional controls to eliminate exposures to any contamination remaining on-site. These controls require deed notices barring residential or residential-type land uses of the Facility property and prohibiting groundwater use.

Contaminants at this Facility: “Primary contaminants at the Facility included lead, mercury, arsenic in soil and groundwater and trichloroethene (TCE) and perchloroethylene (PCE) in groundwater. Facility contaminants have been eliminated by requiring institutional controls that prohibit groundwater use and restrict the Facility property to non-residential purposes.”

3. Hazardous Waste Cleanup: Copperhead Chemical Company Incorporated (Formerly: ICI Explosives) in Tamaqua, Pennsylvania involving ICI Explosives EPA ID: PAR000030874

Location: 2 River Rd

Tamaqua, PA 18252

Property Area: 227 Acres

Other Names: ICI Explosives ("Wakefield Area")

Clean Up Status: After prior removals of hazardous wastes and contaminated soils and several groundwater investigations at the former ICI Explosives USA Inc. facility, the final remedy is complete and consists of institutional controls to eliminate exposures to any contamination remaining on-site. These controls require deed notices barring residential or residential-type land uses of the Facility property and prohibiting groundwater use.

Contaminants at this Facility: EPA issued a Final Decision on September 28, 2007, requiring only "no potable groundwater uses" and "non-residential land use" language in the deed. This requirement was previously implemented. No further corrective action was required.

4. Hazardous Waste Site involving ICI Explosives USA Inc. & Atlas Powder Co. in Carthage, Missouri

Last Updated

02/10/2016

Facility Physical Address

3078 County Road 180
Carthage, MO 64801
United States

County Jasper**EPA ID** MOD077887909**MoDNR Contact Name**

Bryce Bobbitt

MoDNR Contact Phone**(573) 751-3068****MoDNR Contact toll free number:****(800) 361-4827****Background/ History**

The Expert Management, Inc. (EMI) site is located at 3078 County Road 180 in Carthage, about 6.5 miles northeast of Joplin. EMI is the owner of property where its predecessors operated a chemicals and explosives manufacturing facility on approximately 583 acres of their approximate 1740 acre tract of land. The remaining 1157 acres of land was used as "buffer" land, a common practice in the explosives industry. E.I. DuPont de Nemours & Co. Inc. (DuPont) originally built the facility in 1901. In 1912, DuPont divested portions of its explosives operations and the Joplin plant became part of the newly formed **Atlas Powder Co.** Since that time, the site has operated as **Atlas Powder Co., Atlas Chemical Industries, ICI and Atlas Environmental Services.** The site was re-acquired by **ICI Explosives USA Inc.** in May 1990. In 1994, ICI built an incineration complex and magazine storage area to treat explosive/reactive wastes on part of the site that had not been developed or used to store explosives. At that time, the incineration complex was owned by ICI Explosives USA Inc., and operated by ICI Explosives Environmental Co., a subsidiary separate from ICI Explosives USA Inc. In 2001, ICI reorganized. ICI Explosives USA retained ownership of the chemicals and explosives manufacturing facility and changed its name to Expert Management Inc. ICI Explosives Environmental Co. became the owner of the incineration complex and changed the company name to EBV Explosives Environmental Co.

From 1910 to 2001, the facility manufactured industrial grade ammonium nitrate, weak nitric acid, ammonium nitrate-based emulsion explosives, trinitrotoluene (TNT), blasting agents and other chemicals in support of the explosives industry. The facility stopped producing nitroglycerin-based explosives in September 1993. All manufacturing ended in September 2001. The facility operated a

surface impoundment (Atlas Pond), burning ground, drum storage building, acid mud treatment area and emulsion waste treatment sump. The five hazardous waste management units were operated under the “interim status” portions of the federal Resource Conservation and Recovery Act (RCRA).

Cleanup Summary

All interim status regulated hazardous waste management units have gone through the closure process. The acid mud treatment areas were “clean closed.” The impoundment and burning ground were closed with waste in place. The drum storage building and the emulsion waste treatment sump had contaminants in the soil above background levels. Deed notations were made on the property for the drum storage building and the emulsion waste treatment sump. The Department accepted the closure certifications for all the regulated hazardous waste management units. EMI is subject to the permitting requirements of the Missouri Hazardous Waste Management Law and federal Hazardous and Solid Waste Amendments for post-closure care because hazardous waste remained in place at the impoundment and burning ground after closure. In order to protect potential buyers of the site, a Deed Notice, signed by the Jasper County Recorder of Deeds in 1990, was placed on the property in order to inform potential future buyers of the property that the impoundment was used to dilute and/or neutralize acidic waste waters.

EMI is subject to corrective action because they completed closure of the interim status hazardous waste management units after the effective date of the federal Hazardous and Solid Waste Amendments. From 1989 to 2005, **Atlas Powder Co.**, and later EMI, performed corrective action activities at the site under a 3008(h) Corrective Action Administrative Order on Consent with the Environmental Protection Agency (EPA). Investigations confirmed that dinitrotoluene (DNT), nitrates, perchlorate, pesticides and metals were detected in soil, groundwater, and surface water at various locations at the facility. EMI is now performing corrective action activities at the site under a department-issued Missouri Hazardous Waste Management Facility Part I Permit, effective Aug. 31, 2020. The permit requires EMI to conduct post-closure care of the impoundment and burning ground and implement corrective action activities at the site, which include monitoring groundwater and surface water, and composting explosives contaminated soil. The department and EPA also released 1157 acres of the property that were not affected by the facility operations from regulation. This reduced the area subject to the permit to 583 acres. In 2006, a Restrictive Covenant was placed on the land prohibiting residential use of the land and use of groundwater. A Notation to Deed Property placed on the site in 2007, states that EMI operated a bioremediation process for treatment of explosives impacted soils in the Soils Composting Building located on the property. EMI is currently implementing the final remedy for the soil and groundwater contamination. The facility property currently is inactive except for ongoing environmental cleanup and long-term monitoring activities.

5. EPA SUPERFUND Site involving Atlas Powder Company in Weldon Spring, in rural St. Charles County, Missouri

The Weldon Spring Saga

JANUARY 13, 2016 / STELLAMARISPRODUCTIONS

from the Riverfront Times by C.D. Stelzer, 1993

At Weldon Spring, in rural St. Charles County, Mo., a quarry and nearby uranium plant were contaminated with chemical and nuclear materials. As a result, radioactive water is now seeping through limestone into the groundwater. If the quarry water is not removed, there is a chance the seepage will soon reach nearby well fields that supply most St. Charles County’s water.

The contaminants include TNT and DNT, World War II-vintage explosives dumped at the site by the **Atlas Powder Co.** After the war, tons of mixed radioactive wastes were thrown in the quarry by Mallinckrodt Chemical Works. The waste continued to be hauled to the quarry until 1968.

So in 1986, the DOE began an ambitious 12-year cleanup at the two sites. The estimated cost to the **EPA Superfund** has doubled since 1989, and now stands at between \$650 and \$850 million. About \$4 million of that money has gone to build the water treatment plant at the quarry.”

6. Atlas Powder Dump Area near Torch Lake Michigan

Their findings after testing debris, soil samples, and ground water tests indicated, “Daily exposure to the lead found in the soil at the site may cause harm to children. Some very high concentrations of lead were found there. The site is located in the woods, and children might not play there often. Nevertheless, exposure should be prevented. Only a small portion of the entire Atlas Powder area was investigated. The rest of the area will need to be investigated before a remedy can be proposed.”

Michigan Department of Community Health Fact Sheet for the “Atlas Powder Dump Area – Determination of Public Health Implications” Health Consultation [https://www.michigan.gov/-/media/Project/Websites/mdhhs/Folder1/Folder24/2010-05-10 - Atlas Powder HC factsheet.pdf](https://www.michigan.gov/-/media/Project/Websites/mdhhs/Folder1/Folder24/2010-05-10_-_Atlas_Powder_HC_factsheet.pdf)

DANGERS OF MUNITIONS AND EXPLOSIVES

The munitions and explosives remain even more unstable even “8 decades later”:

“Several studies have revealed that the deterioration of explosive fillers can make the munitions increasingly sensitive to external stimuli and susceptible to detonation when exposed to heat, shock or friction [7–10]. Moreover, an increasing number of spontaneous detonations have been reported in ageing munitions, possibly due to deteriorating or changing technical or chemical properties [11,12]. Previous studies regarding samples of high explosives extracted from ERW (e.g. TNT and PETN) have indicated that the impact sensitivity of ageing explosives does not appear to have been reduced over the last eight decades, and in some cases, the explosives can even become more sensitive to stress [13]. Some reports have also indicated that under specific circumstances, Amatols can form dangerous compounds that may increase their sensitivity (i.e. [5,6,14]). However, few studies have analysed the properties of ageing Amatols in ERW. Consequently, we do not have sufficient data available to properly assess the risks related to spontaneous detonation or the clearance and handling of ERW with the Amatol filling. (Novik & Christensen, 2024)

Site Investigation and Remediation for Munitions Response Projects

Welcome – Thanks for joining us.
ITRC's Internet-based Training Program



**Site Investigation and Remediation for
Munitions Response Projects**



This training is co-sponsored by the EPA Office of
Superfund Remediation and Technology Innovation

The Department of Defense (DoD) is currently working on an inventory of former ranges with potential for munitions contamination. There are an estimated 2,000 munitions-contaminated sites located in all 50 states and territories that may affect more than 10 million acres. State and tribal regulatory officials and community stakeholders are routinely required to evaluate DoD cleanup strategies with little, if any, environmentally oriented munitions response experience or guidance. State regulators are increasingly being charged with oversight responsibility for munitions response cleanup projects on other than operational ranges, such as formerly used defense sites (FUDS) and base realignment and closure (BRAC) sites. In addition, DoD project managers and industry will benefit from a greater understanding of state regulator expectations.

ITRC's Unexploded Ordnance Team has developed this Internet-based training on the site investigation and site remediation process for munitions response sites on other than operational ranges. This training provides an introduction and overview of the processes, tools, and techniques used in investigation and remediation. These concepts are illustrated using an example munitions response site. During the course of the training, major steps in each process are identified and key regulatory considerations discussed. This training also identifies additional sources for more detailed information on key aspects of investigation and remediation. State regulators and others who need to understand the general processes involved in these critical aspects of the munitions response process will benefit from this training.

Related ITRC trainings include Munitions Response Historical Records Review and Geophysical Prove-Outs for Munitions Response Projects.

ITRC (Interstate Technology and Regulatory Council) www.itrcweb.org

Training Co-Sponsored by: EPA Office of Superfund Remediation and Technology Innovation (www.clu-in.org)

ITRC Course Moderator: Mary Yelken (myelken@earthlink.net)

https://www.clu-in.org/conf/itrc/uxosisr_120605/prez/ITRC_UXO-SISR_110305ibtbw.pdf

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Please look over this 80 page document on how to prepare for risk assessment of a munitions site at 2814 Tipton Station Road: https://www.clu-in.org/conf/itrc/uxosisr_120605/prez/ITRC_UXO-SISR_110305ibtbw.pdf

For Additional Information on Munitions And Explosives of Concern Hazard Assessment Methodology outlined by technical expertise from a collaboration of representatives from the Department of Defense (DoD), the U.S. Department of the Interior (DOI), Association of State and Territorial Solid Waste Management Officials (ASTSWMO), and the U.S. Environmental Protection Agency (EPA) on pilot projects at Camp Beale in California and Camp Butner in Wilmington North Carolina:

https://www.epa.gov/sites/default/files/documents/mec_ha_methodology_interim.pdf