



# Institutional Control Requiring Minimum Well Depth

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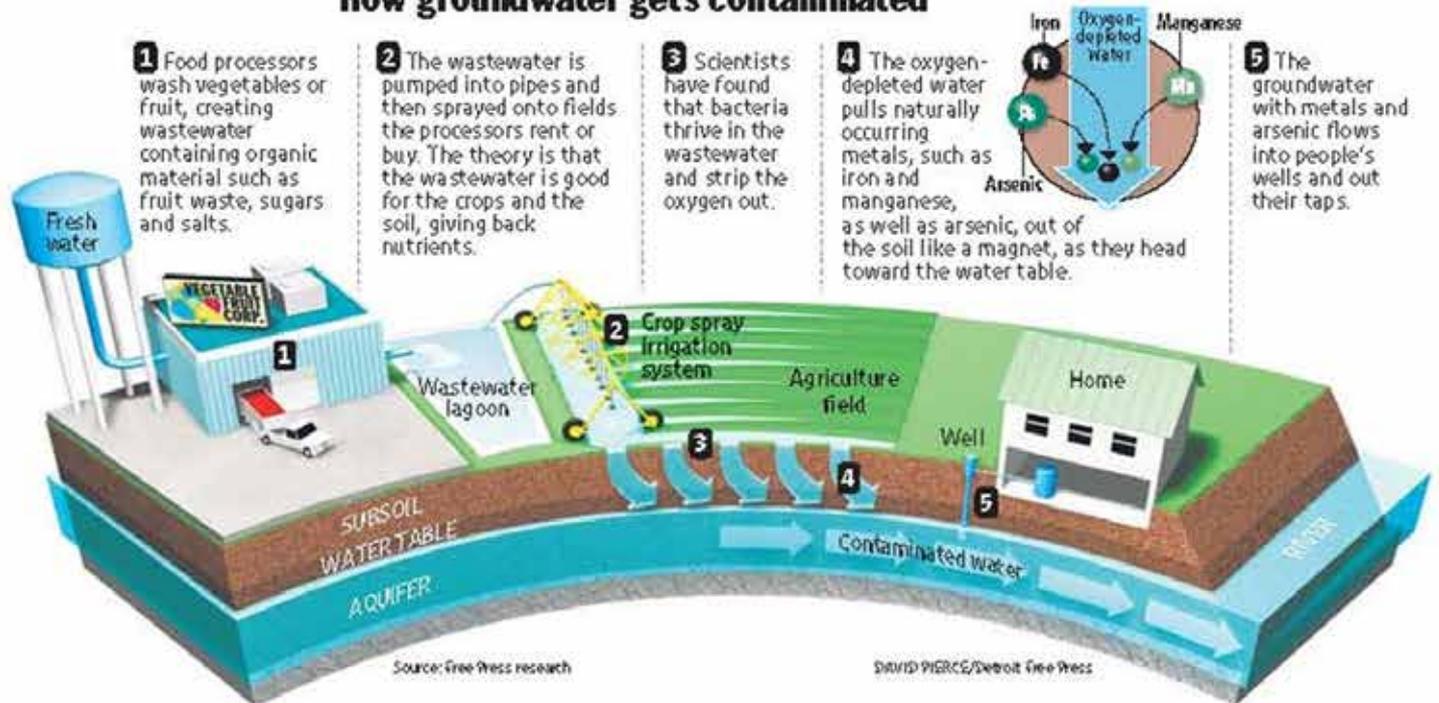
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# Site Information

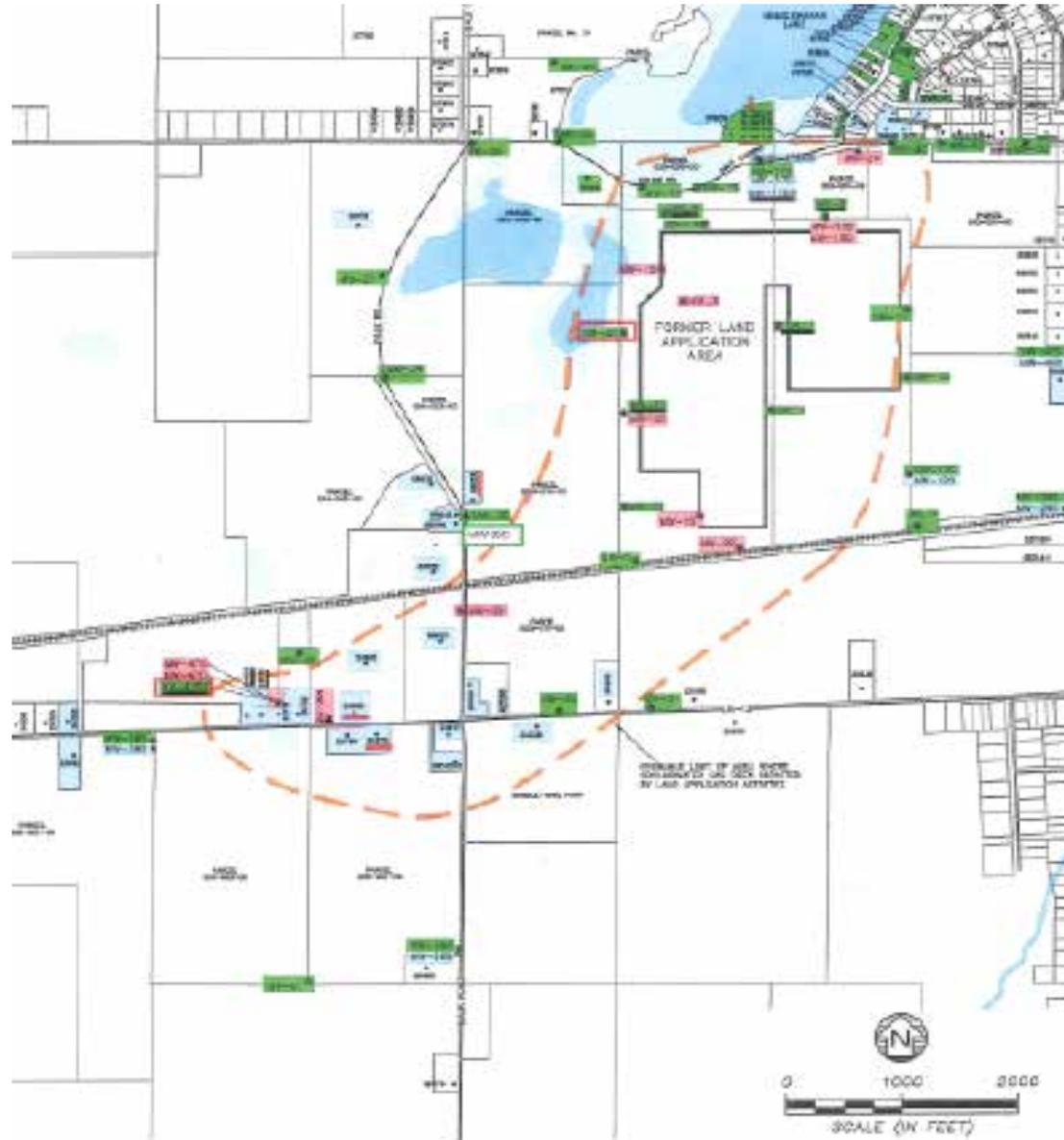
- Location – Sturgis, Michigan
- Type of Facility – Food processor
- Problem – Large cation/metals plume covering extensive area

# Origin of Plume

## How groundwater gets contaminated

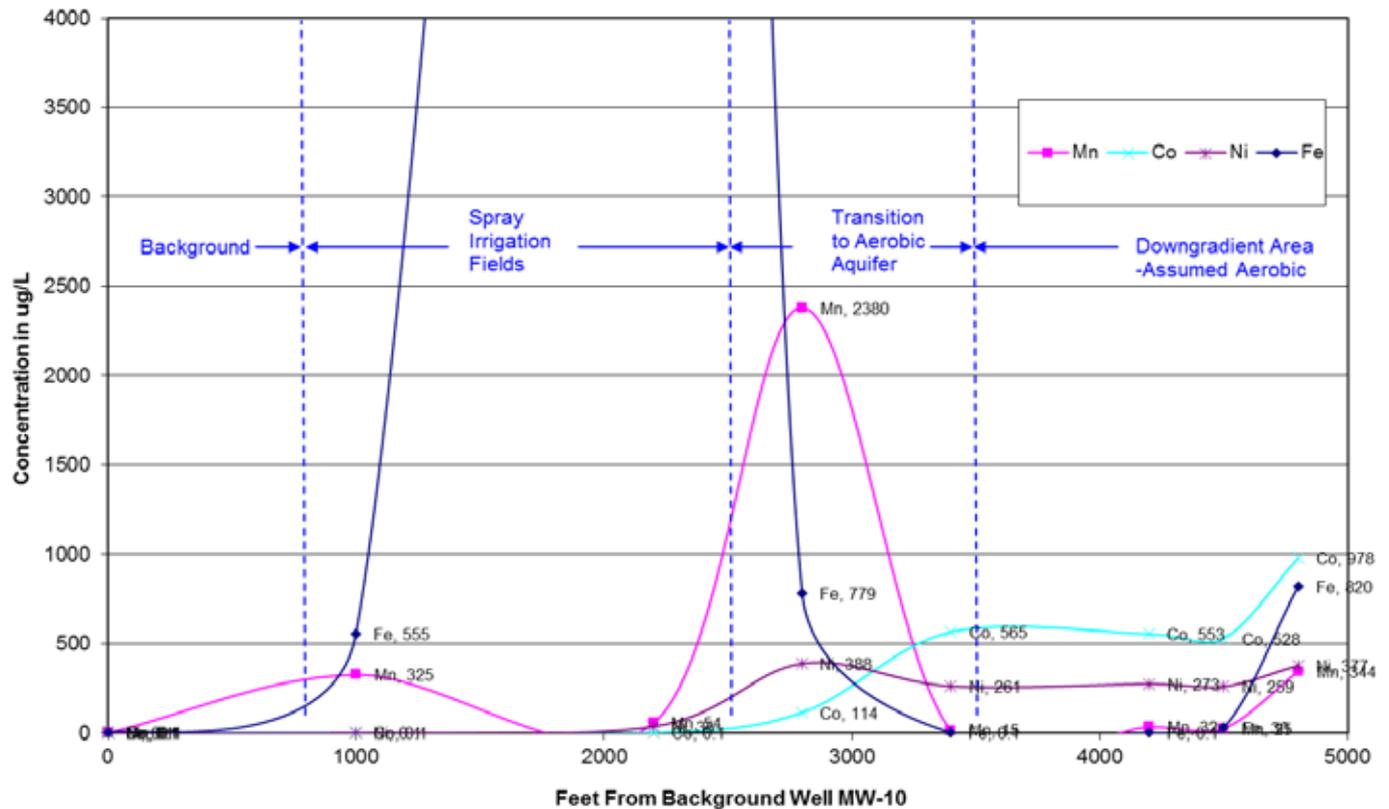


# Plume Map

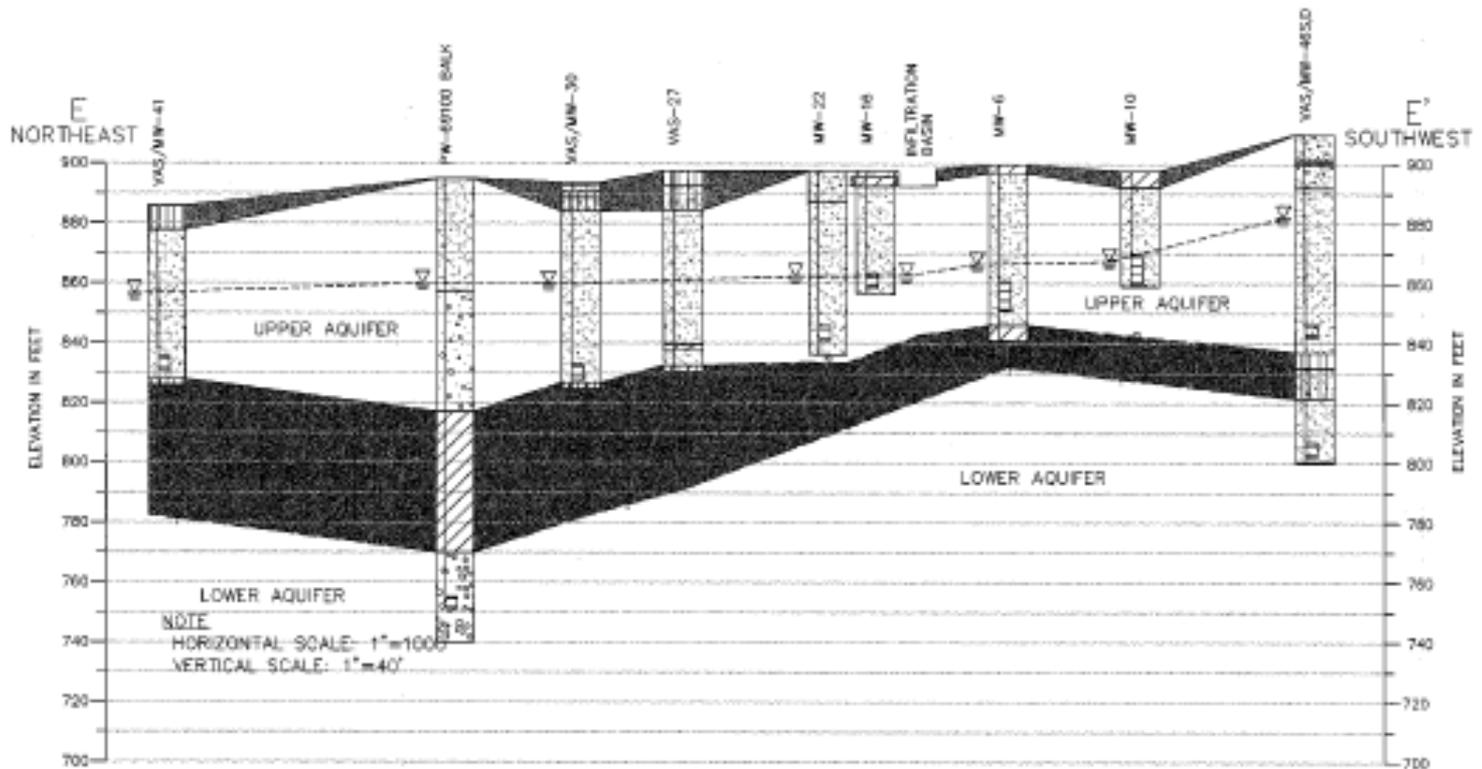


# Plume Characteristic's

Contaminant Distribution

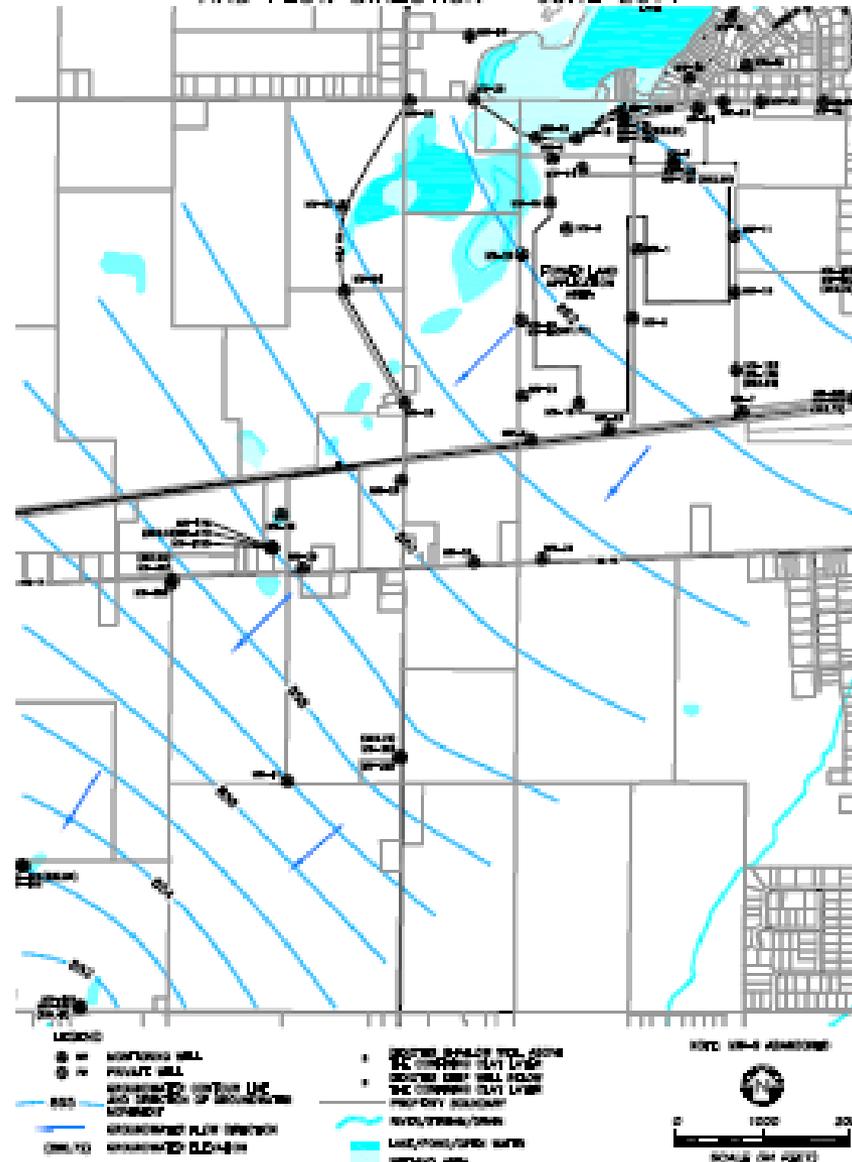


# Plume Map/X-Section



# Groundwater Flow

DEEP GROUNDWATER ELEVATION CONTOURS  
AND FLOW DIRECTION - JUNE 2014



# Layering of Land or Resource Use Restrictions

“Layering” is the concept of using different types of LRURs to assure the effectiveness and integrity of the response activities undertaken at the facility.

# Sturgis Township Ordinance

- Ordinance needed due to large area encompassing multiple affected properties.
- Well Survey and sampling conducted
  - 12 wells impacted
  - 12 wells replaced
- Ordinance enacted in 2014



# Layering at the **Abbott Laboratories Facility**

- Municipal Ordinance enacted pursuant to Section 20121(8)
  - Requires approval prior to installation or use of any groundwater well within Restricted Area.
  - Incorporates a Well Installation Program
- Cooperative Agreement pursuant to Section 20121(9)

# Restricted Area



# Ordinance Components

## Well Installation Program (New Wells)

- Requires applicant to obtain a well permit for new wells from the local health department.
- Wells to be drilled to appropriate depth using licensed well driller selected by Abbott.
- Abbott to pay for costs for wells drilled beyond 25 feet.
- Wells to be constructed in accordance with the Michigan Well Construction Code.
- Wells to be sampled by Abbott and approved by health department prior to use.

# Ordinance Components

## Well Installation Program (Existing Wells)

- Requires Abbott to monitor existing wells for constituents of concern in accordance with MDEQ approved plans.
- If constituents above health-based drinking water standards, Abbott to supply an alternate source of water (i.e., bottled water) until new well constructed and approved.
- Old well to be abandoned in accordance with the Michigan Well Construction Code, and property repaired.

# Ordinance Components

## Cooperative Agreement (Contract)

- Between Sturgis Township and Abbott Laboratories
- Abbott agrees to support township's enforcement of the ordinance.
- Township agrees to provide Abbott with written notice of application to construct a new well within restricted zone.
- Abbott agrees to perform and supervise response activities in accordance with the Well Installation Program
- Agreement shall terminate upon rescission of ordinance or upon demonstration to MDEQ satisfaction that a public health and welfare risk no longer exists.

# Michigan Department of Environmental Quality

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