APPENDIX K

WATER SOURCE STUDY BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

North Central MO Regional Water Commission

PWSS No. 2010523, Elmwood Reservoir Intake

Sullivan County, Map 1 of 3

3 intakes, 6 potential contaminant sources

Prepared by

Map Update: May 22, 2009

Missouri Department of Natural Resources

Surface Water System

- System Intake
- Drainage Basin
- 5 Mile Upstream Limit

Potential Contaminant Source

- Database Source (Location Confirmed)
- Database Source (Location Unconfirmed)
- SWIP Field Data

N

Miles

0 0.6 1.2

SWAP - Source Water Assessment Plan – http://drinkingwater.missouri.edu/swap/
Aerial photos from 2007 USDA NAIP or the 2007 Missouri Leaf-Off Imagery Program (Eastern MO)

North Central MO Regional Water Commission

PWSS No. 2010523, New Milan Lake Intake

Sullivan County, Map 2 of 3

3 intakes, 6 potential contaminant sources

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Map Update: May 22, 2009

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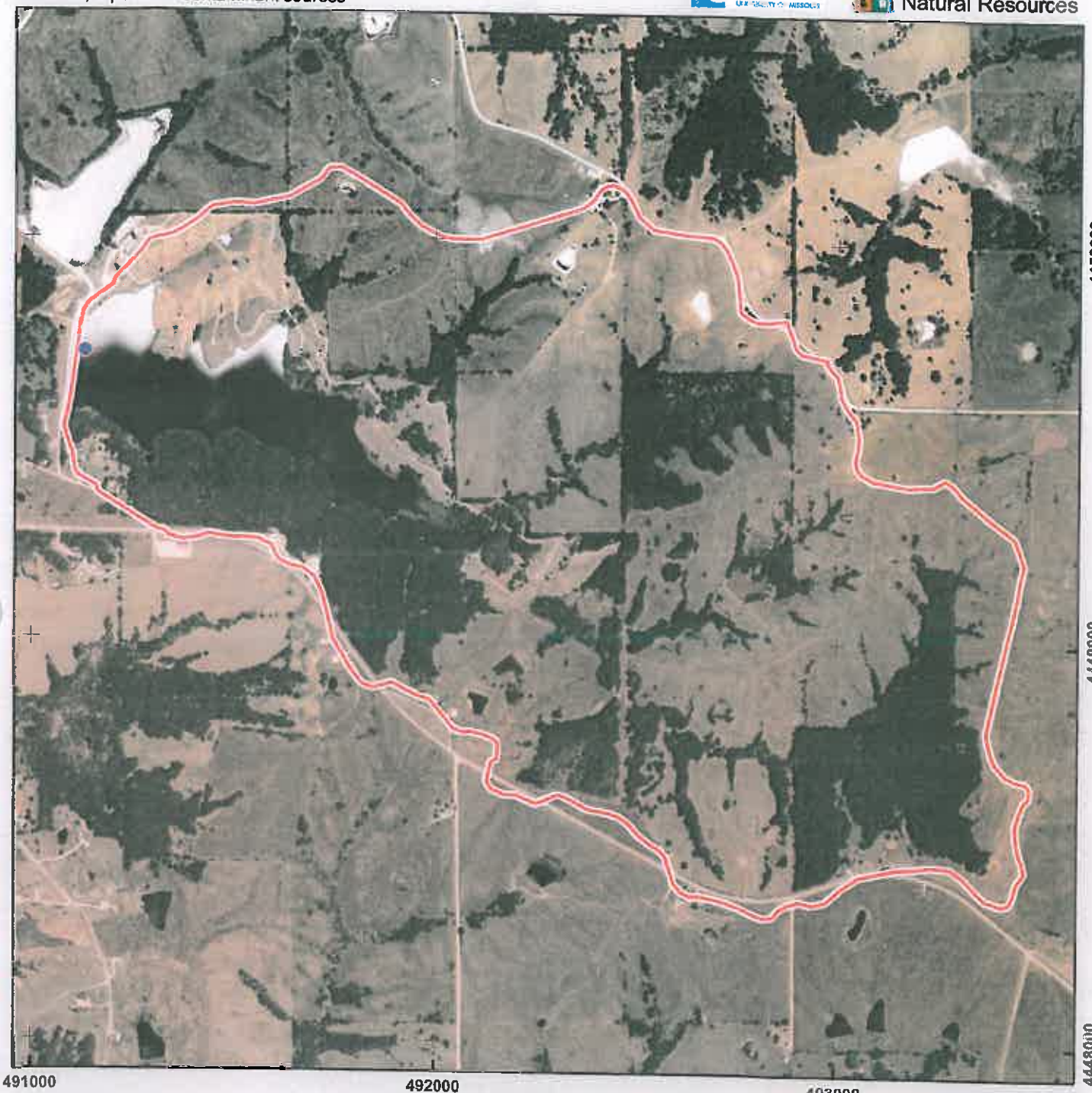

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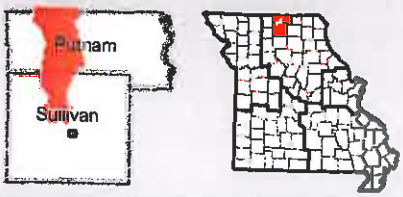

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0 0.2 0.4

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PWSS No. 2010523, Locust Creek Intake

Sullivan County, Map 3 of 3

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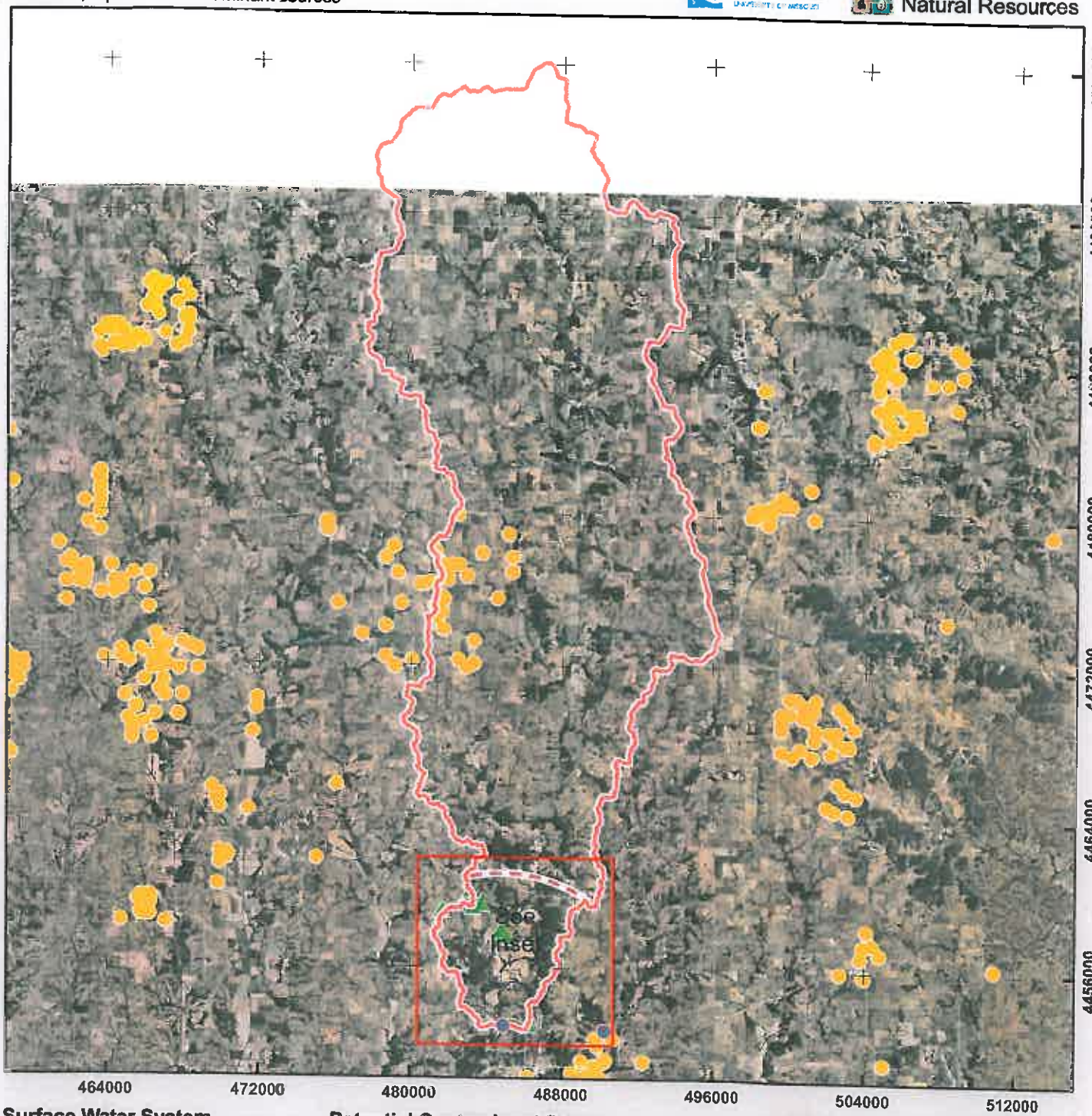

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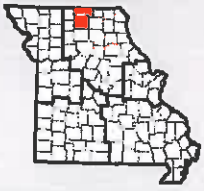

Miles

0 4 8

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PWSS No. 2010523. Locust Creek Intake

Sullivan County, Map 3 of 3 - INSET

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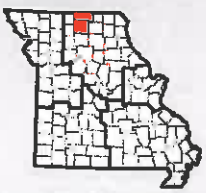

Miles

0 0.75 1.5

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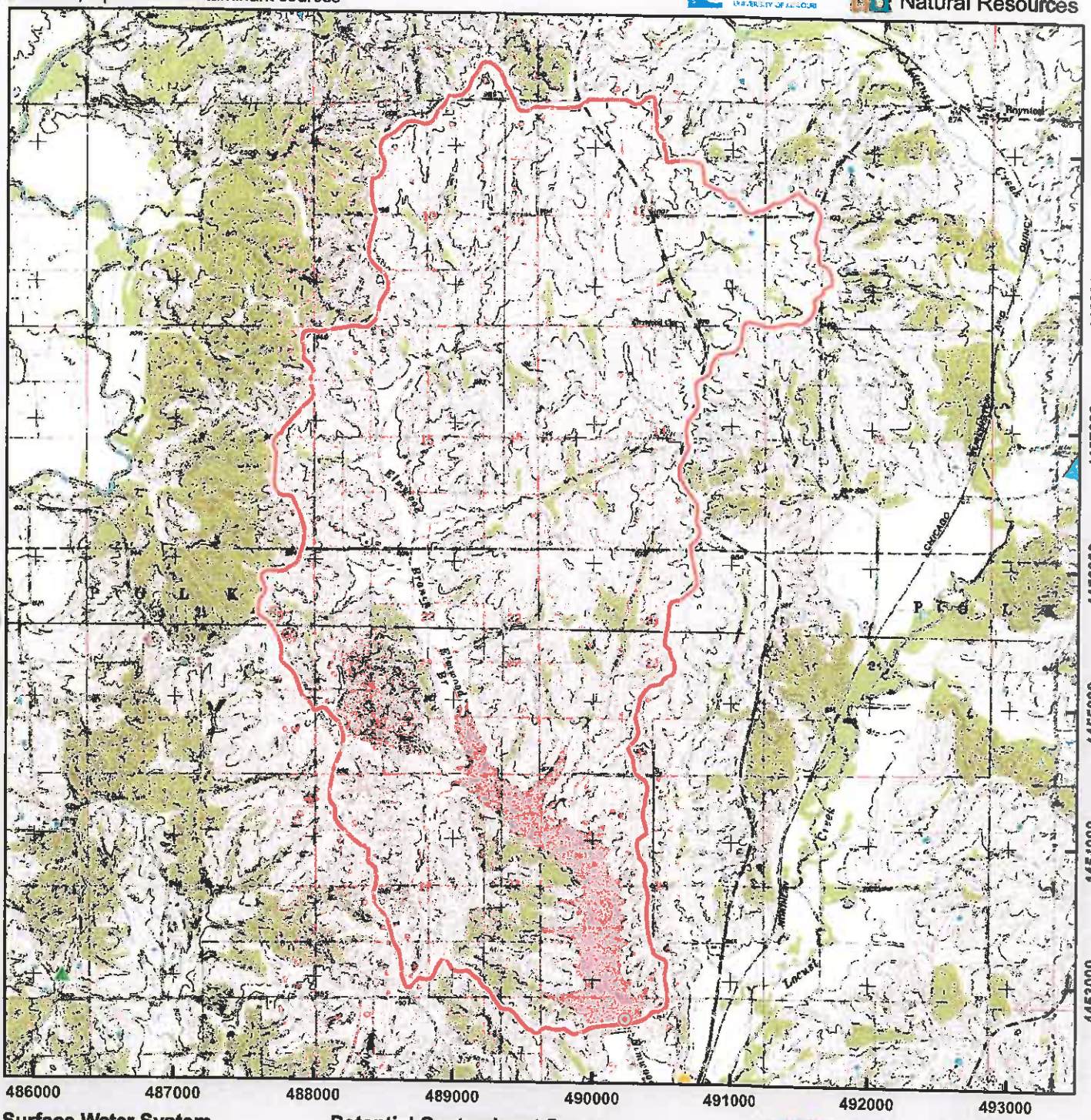

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North Central MO Regional Water Commission

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Sullivan County, Map 2 of 3

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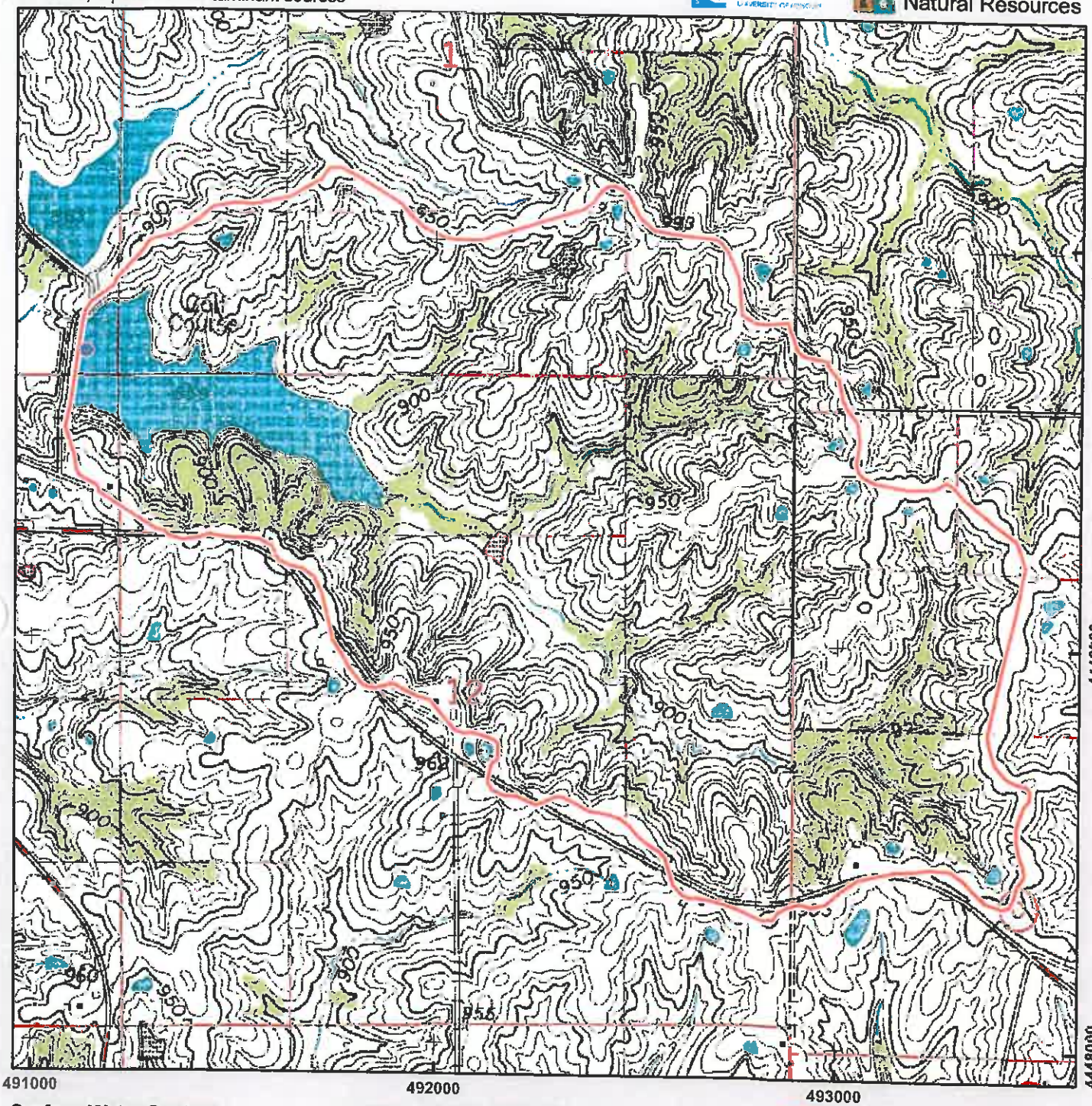

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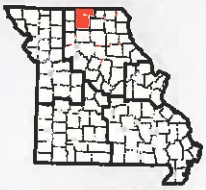

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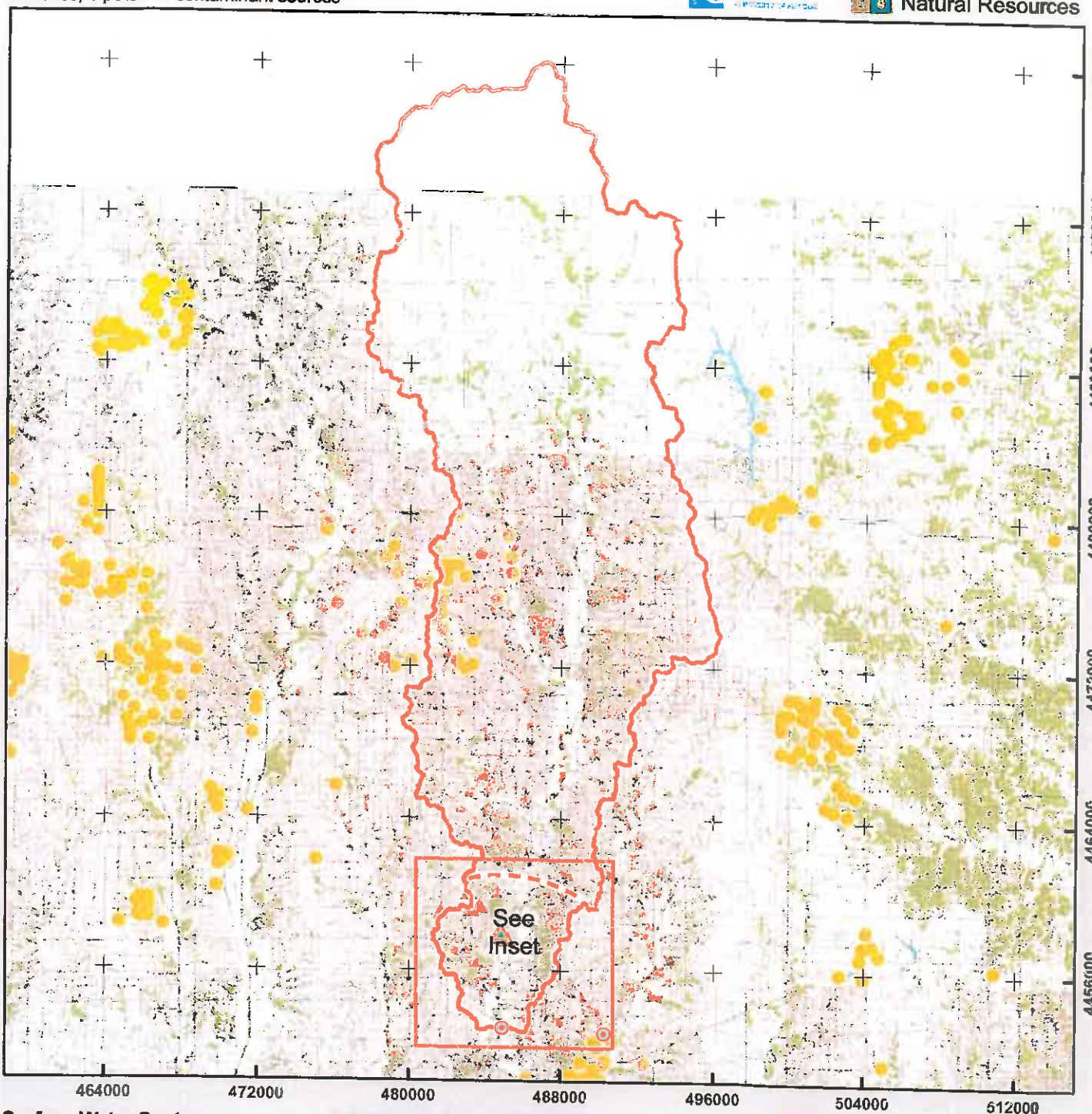

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0 4 8

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Sullivan County, Map 3 of 3 - INSET

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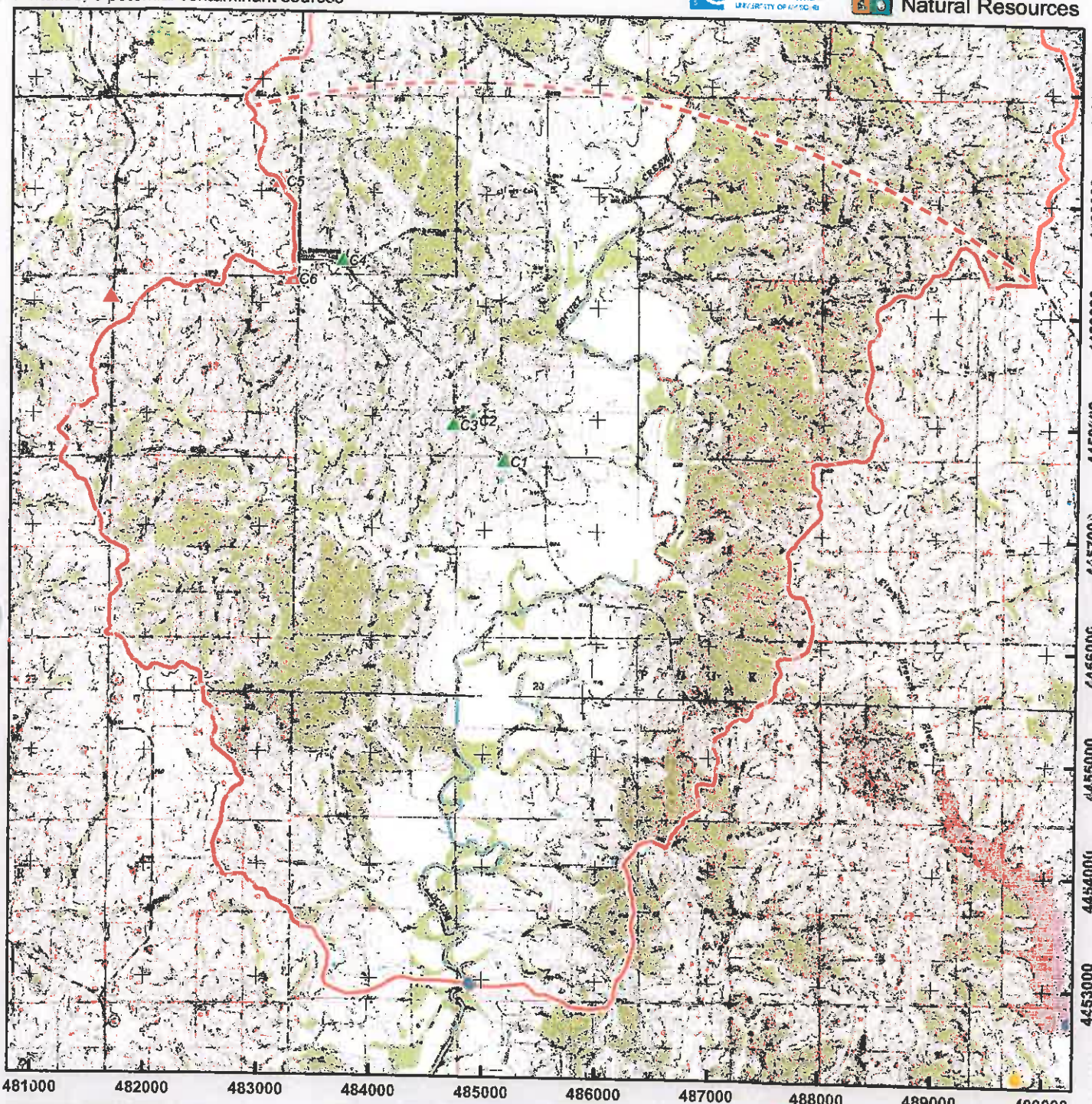

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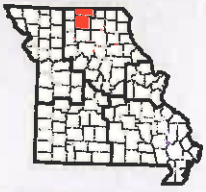

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North Central MO Regional Water Commission

PWSS No. 2010523

Sullivan County

3 intakes

Prepared by

Sheet Update: May 21, 2009

Missouri Department of Natural Resources

Intake ID	20216	20217	30117
Extended PWS #	2010523203	2010523202	2010523301
Local Intake Name	Elmwood Reservoir	New Milan Lake	Locust Creek
Intake Type	Impoundment Intake	Impoundment Intake	River Intake
Contributing Acres	4,122.26	664.84	139,285.02
Latitude	-93 11477	-93 10421	-93 17764
Longitude	40 22486	40 19778	40 22692
Location Method	DRG/Map	DOQQ	GPS, Garmin 12XL
Method Accuracy (ft)	200	33	82
USGS 7 5 Quadrangle	Milan East	Milan East	Milan West
County	Sullivan	Sullivan	Sullivan
MoDNR Region	Northeast	Northeast	Northeast

North Central MO Regional Water Commission

PWSS No. 2010523

Sullivan County

6 potential contaminant sources

Prepared by

Sheet Update: May 26, 2009

Missouri Department of Natural Resources

Map C.No.	CARES ID	Site Name	Type	Location Code	Accuracy Code	Method Code	Database Code
C1	386133		Tank (above-ground fuel)	TK	33 ft	I2	CARES
C2	386134		Tank (above-ground fuel)	TK	33 ft	I2	CARES
C3	386135		Tank (above-ground fuel)	TK	33 ft	I2	CARES
C4	386136	Bairdstone Cemetery	Cemetery	CF	33 ft	I2	CARES
C5	386137		Tank (above-ground fuel)	TK	33 ft	I2	CARES
C6	386138		Tank (above-ground fuel)	TK	33 ft	I2	CARES

Method Codes

Code	Address Matching (Geocoding)
A2	Block/Group
A3	Street Centerline
A4	Nearest Street Intersection
A5	Primary Street Name
A6	Digitization
AO	Other Address Matching
Z1	ZIP Code Centroid
	Census - 1990
C1	Block Centroid
C2	Block/Group Centroid
C3	Tract Centroid

Code	Global Positioning System
G1	Static Mode
G2	Kinematic Mode
G3	Differential Post Processing
G4	Precise Positioning Service
G5	Signal Averaging
G6	Real Time Differential Processing
	Interpolation
I1	Topo Map
I2	Aerial Photography (DOQQ)
I3	Satellite Imagery

Code	Other
P1	Land Survey
S2	Quarter Description
UN	Unknown

Location Codes

BL	Building
CF	Center of Facility
IN	Intersection
LS	Lagoon or Pond
MG	Main Access Point (Gate)
MA	Main Office
OT	Other
PL	Pile
RD	Road
TK	Tank, Standpipe, or Tower
WL	Well
UN	Unknown

Accuracy Codes

Code	Metric
m	Meters
km	Kilometers
	English
ft	Feet
yd	Yards
mi	Miles
UN	Unknown
NF	Site not found at database position
NV	Site position not verified

North Central MO Regional Water Commission

PWSS No. 2010523

Contaminant Summary Sheet

6 potential contaminant sources

Prepared by

Sheet Update: Jun 01, 2009

Missouri Department of Natural Resources

6 Potential Contaminant Sources in the Listed Databases:

AFS (EPA AIRS Facility Sites)
APCP (MoDNR Air Pollution Control Program Sites)
APF (MoDNR Active Permitted Landfills & Transfer Stations)
CERCLIS (EPA CERCLIS)
Chemcov (VA Selected Chemical Sites)
Dealcov (MDA Pesticide Dealer Locations)
Dioxin (MoDNR Confirmed Dioxin List)
Grain B (USDA Former Grain Bin Sites)
HW Gen (MoDNR Hazardous Waste Generators)
HW Tran (MoDNR Hazardous Waste Transporters)
LUST (MoDNR Leaking Underground Storage Tanks)
MoDOT (MoDOT Highway Maintenance Facilities)
PADS (EPA PCB Activity Data Base System)
Perchlo (MoDNR Perchlorate Sites in Missouri)
Pest Ap (MDA Licensed Pesticide Applicators)
RCRIS (EPA Resource Conservation and Recovery Information System)
Silos (USGS Minuteman II Missile Silos)
SMARS (MoDNR Superfund Management and Registry System)
Tanks (MoDNR Petroleum Tank Database)
Tier 2 (MERC Tier II Reports)
Tire D (MoDNR Resolved and Unresolved Waste Tire Dumps)
TRI (EPA Toxic Release Inventory)
VCP (MoDNR Voluntary Cleanup Program Sites)
WQIS (MoDNR Water Quality Information System)

6 SWIP Field Inventory (see below)

6 Potential Contaminant Sources in the SWIP Field Inventory:

0 Airport or abandoned airfield
0 Animal feedlot
0 Apartments and condominiums
0 Asphalt plant
0 Auto repair shop
0 Automotive dealership
0 Barber and beauty shop
0 Boat yard and marina
0 CAFO
0 Campground
0 Car wash
0 Cement Plant
1 Cemetery
0 Communication equipment mfg
0 Country club
0 Dry cleaner
0 Dumping and/or burning site
0 Electric equipment mfg or storage
0 Electric substation
0 Farm machinery storage
0 Feed/Fertilizer/Co-op
0 Fire station
0 Funeral service and crematory
0 Furniture manufacturer
0 Furniture repair or finishing shop
0 Garden and/or nursery
0 Garden, nursery, and/or florist
0 Gasoline service station
0 Golf courses
0 Government office
0 Grain bin
0 Hardware and lumber store
0 Hazardous waste (Federal facility)
0 Highway maintenance facility
0 Jewelry or metal plating shop
0 Junk yard or salvage yard
0 Lagoon (commercial)
0 Lagoon (industrial)
0 Lagoon (municipal)
0 Lagoon (residential)
0 Landfill (municipal)
0 Laundromat
0 Livestock auction
0 Machine or metalworking shop
0 Manufacturing (general)
0 Material stockpile (industrial)
0 Medical institution
0 Metal production facility
0 Mining operation
0 Other
0 Paint store
0 Park land
0 Parking lot
0 Petroleum production or storage
0 Pharmacies
0 Photography shop or processing lab
0 Pit toilet
0 Plastic material and synthetic mfg
0 Print shop
0 Railroad yard
0 Recycling/reduction facility
0 Research lab
0 Restaurant
0 Sawdust pile
0 School
0 Sports and hobby shop
0 Swimming pool
0 Tailing pond
5 Tank (above-ground fuel)
0 Tank (other)
0 Tank (pesticide)
0 Tank (underground fuel)
0 Trucking terminal
0 Veterinary service
0 Wastewater treatment facility
0 Well (abandoned)
0 Well (domestic)
0 Well (irrigation)
0 Well (livestock)
0 Well (monitoring)
0 Well (public water supply)
0 Well (unknown)

North Central MO Regional Water Commission

PWSS No. 2010523

Susceptibility Determination Sheet

3 intakes

Prepared by

Sheet Update: Jun 03, 2009

Missouri Department of Natural Resources

The Missouri Department of Natural Resources (MoDNR) has assembled this information to assess the susceptibility of drinking water sources to contamination. There are many unforseen and unpredictable factors that may cause a source to be contaminated. MoDNR routinely monitors all public supplies to ensure public health is protected. Public water systems and local communities are encouraged to take all measures possible to reduce the susceptibility of their drinking water source to chemical contamination. For more information, call 1-800-361-4827.

	Not Susceptible	Moderately Susceptible	Highly Susceptible	Incomplete Data
A system is highly susceptible based on detection histories if:				
Volatile Organic Chemicals (VOCs) have been consistently detected the source water,				X
Synthetic Organic Chemicals (SOCs) have been consistently detected the source water,				X
Inorganic Chemicals (IOCs) have been detected in a well above naturally occurring levels,				X
Nitrates have been consistently detected at or above one-half the MCL, or				X
Viruses or microbiological contaminants are consistently detected in the source water.			X (1)	
A system is moderately susceptible to contaminants if:				
Any contaminants listed in Appendix F-a are found in the source water area,		X (2)		
Land use in the source water area is a likely non-point source of contamination,				X
The water body receives recharge from a contaminated groundwater source, or				X
There is a high density of transportation corridors in the source water area.				X
A system is highly susceptible to contamination if:				
Any contaminant sites identified in the source water area are known to have released contaminants into the environment and may reach the water body, or				X
A large portion of the land use in the source water area is a likely non-point source of contamination, or				X
The source water is affected by contaminated groundwater.				X

(1) This system uses a water source that shows signs of contamination. The Department of Natural Resources will monitor the degree of contamination. The water system should treat the water accordingly to remove contamination before it enters the distribution system. The water system and watershed protection team should also make an effort to eliminate contaminants entering the source water.

(2) An intake (or intakes) serving this system has been determined to be susceptible due to the presence of potential contaminant sources. The water system and the watershed protection team should take extra care to ensure that all potential contaminants in the source water area are handled properly to avoid contamination of the drinking water supply. Periodic monitoring will be required to track contamination of the source water. If possible, contaminant sources should be removed from the source water area.