

# Appendix B

Lagoon Closure Plan – East  
Lagoon Closure Plan – West  
Erosion Control Plan

Closure Plan for Wastewater Treatment Lagoon  
Missouri Department of Transportation  
Mineola East Bound Rest Area

Permit No. MO-0084263  
Owner: Missouri Department of Transportation

I Facility Description

A Type: three cell lagoon  
B Location; Interstate 70, & Mile Marker 169, Mineola, Mo 63360  
C Size:  
Dimensions: Total 1.17 acres  
Capacity: 9,500 gallons per day  
Pop. Equiv.: 168  
D Age: Put in use 1966 removed from service May 2011

II Waste water

A Quantity Total operating volume approximately 1,000,000 gallons  
B Quality Pumped at a rate no greater than 9,500 gallons per day discharge to waters of the state within permit limits  
Leave six inches of water above sludge layer in third cell  
C Method of Disposal Pumped at a rate no more than 9,500 gpd from cell one to cell two and cell two to cell three and finally cell three.

III Sludge

A Quantity approximately 83 CY in cell one, 11.8 CY in Cell two and 5.4 CY in cell three (Total 100.2 CY) (84.2 dry tons) (488.5 lbs of PAN total)  
B Quality Sludge in cell one 70 dry tons (424.6 lbs of PAN)  
Sludge in cell two 10 dry tons (45.9 lbs of PAN)  
Sludge in cell three 4.5 dry tons (18 lbs of PAN)  
C Method of Disposal Sludge will be left in place since lagoons are more than 15 years old.  
Lagoons and area equal 1.5 plus acres of area to be mixed with the sludge

IV Structure

The lagoons are to be destroyed by filling in. Sludge left in place and the berms turned in and mixed with the sludge on a 1:1 ratio. Smoothed over and seeded to grass. There is no mechanical plant with these lagoons.

Note: Laboratory analysis attached

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## Existing Facility Information

Land use adjacent properties – agricultural and state park – Aerial photograph

Average usage – 26 cars, 20 trucks and RVs

Design Flow – 9,300 GPD

Population Equivalent – 180 per day

No measurement of influent flow

3 cell facultative (non-aerated) lagoon system

Total surface area – 1.4 acres

Total lagoon depth – 5 ft.

Normal operating depth – 3 ft.

Operating surface area – 1.17 acres

Average detention time – 107 days

Effective storage volume – 360,000 gallons

Cell 3 submerged sand filter

Total surface area – 1,000 sq. ft.

Approximate sand volume – 46 cu. yds.

Approximate rock/gravel volume – 4 cu.yds.

Discharge to Loutre River, Class U and then to Loutre River, Class P

All material in the lagoons including the sand, gravel and rock will not be removed, but mixed with the soil and sludge, smoothed over and seeded to grass.

In calculating the sludge levels, a sludge judge was used to take readings throughout the lagoons and averaged. The sludge judge was also used to take samples of the sludge for testing.

Lagoon one averaged 10 to 12 inches of sludge blanket. 12 inches was used in the calculations

Lagoon two averaged 5 to 6 inches of sludge blanket. 6 inches was used in the calculations.

Lagoon three averaged 2 to 3 inches of sludge blanket. 3 inches was used in the calculations.

Closure Plan for Wastewater Treatment Lagoon  
Missouri Department of Transportation  
Mineola Rest Area

Permit No. MO-0084255  
Owner: Missouri Department of Transportation

I Facility Description

- A Type: three cell lagoon  
B Location: Interstate 70, & Mile Marker 169 West Mineola, Mo 63360  
C Size:  
Dimensions: Total 1.3 acres  
Capacity: 9,300 gallons per day  
Pop. Equiv.: 168  
D Age: Put in use 1966 removed from service May 2011

II Waste water

- A Quantity Total operating volume approximately 950,000 gallons  
B Quality Pumped at a rate no greater than 9,300 gallons per day discharge to waters of the state within permit limits  
C Method of Disposal Pumped at a rate no more than 9,300 gpd from cell one to cell two and cell two to cell three and finally cell three.  
Leave six inches of water above sludge layer in third cell

III Sludge

- A Quantity approximately 102 CY in cell one, 20 CY in Cell two and 6.8 CY in cell three (Total 128.8 CY) (108 dry tons) (788.7 lbs of PAN total)  
B Quality Sludge in cell one 86 dry tons (715 lbs of PAN)  
Sludge in cell two 18.48 dry tons (57.7 lbs of PAN)  
Sludge in cell three 5.7 dry tons (16 lbs of PAN)  
C Method of Disposal Sludge will be left in place since lagoons are more than 15 years old.  
Lagoons and area equal 1 plus acres of area to be mixed with the sludge

IV Structure

The lagoons are to be destroyed by filling in. Sludge left in place and the berms turned in and mixed with the sludge on a 1:1 ratio. Smoothed over and seeded to grass. There is no mechanical plant with these lagoons.

Note: Laboratory analysis attached

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## Existing Facility Information

Land use adjacent properties – agricultural and state park – Aerial photograph

Average usage – 23 cars, 16 trucks and RVs

Design Flow – 9,300 GPD

Population Equivalent – 168 per day

No measurement of influent flow

3 cell facultative (non-aerated) lagoon system

Total surface area – 1.3 acres

Total lagoon depth – 5 ft.

Normal operating depth – 3 ft.

Operating surface area – 1.1 acres

Average detention time – 102 days

Effective storage volume – 350,000 gallons

Cell 3 submerged sand filter

Total surface area – 1,400 sq. ft.

Approximate sand volume – 53 cu. yds.

Approximate rock/gravel volume – 15 cu.yds.

Discharge to Loutre River, Class U and then to Loutre River, Class P

All material in the lagoons including the sand, gravel and rock will not be removed, but mixed with the soil and sludge, smoothed over and seeded to grass.

In calculating the sludge levels, a sludge judge was used to take readings throughout the lagoons and averaged. The sludge judge was also used to take samples of the sludge for testing.

Lagoon one averaged 10 to 12 inches of sludge blanket. 12 inches was used in the calculations

Lagoon two averaged 5 to 6 inches of sludge blanket. 6 inches was used in the calculations.

Lagoon three averaged 2 to 3 inches of sludge blanket. 3 inches was used in the calculations.

### Erosion Control Instructions for Lagoon Closures

- 1) Plans and quantities derived using as-built plans, adjustments will need to be made for site conditions.
- 2) All erosion control measures shall be installed as shown on the Site Plan and in accordance with Standard Plan 806.10H.
- 3) MoDOT personnel shall be consulted during installation and are available for periodic inspections.
- 4) MoDOT will perform the required weekly and post-runoff inspections for this land disturbance and document the results on the Land Disturbance Inspection Report. The contractor shall provide quality control inspections and make the necessary repairs prior to the MoDOT inspections.
- 5) Since the disturbed areas are greater than 1 acre the department's January 2012 SWPPP (Stormwater Pollution Prevention Plan) will be in effect.