

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0058068

Owner: U.S. Army, Installation Management Command (IMCOM) and Fort Leonard Wood  
Address: 1334 1<sup>st</sup> Street, Fort Leonard Wood, MO 65473

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Fort Leonard Wood Water Treatment Plant  
Facility Address: Building 1601, Fort Leonard Wood, MO 65473

Legal Description: SW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>, Sec. 23, T35N, R11W, Pulaski County  
UTM Coordinates: X= 578908, Y= 4178045

Receiving Stream: Unnamed tributary to Big Piney River (U) Losing  
First Classified Stream and ID: Big Piney River (P) (1566)  
USGS Basin & Sub-watershed No.: 10290202-0403

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

Outfall #001 - Water Treatment Plant – Drinking Water Supply – SIC #4941  
Sedimentation basin for water treatment plant sludge and filter backwash water / dechlorination system / land application of sludge by contract operator.  
Design flow is 4.70 million gallons per day (MGD).  
Actual flow is 0.603 MGD.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Sections 640.013, 621.250, and 644.051.6 of the Law.

August 1, 2014  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

September 30, 2016  
Expiration Date

John Madras, Director, Water Protection Program

<b>OUTFALL #001</b>	<b>TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>	PAGE NUMBER 2 of 7
		PERMIT NUMBER MO-0058068

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective on **August 1, 2014**, and remain in effect through **July 31, 2015**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (Note 1, Page 3)	MGD	*		*	once/quarter***	24 hr. estimate
Settleable Solids	mL/L/hr	1.0			once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Fluoride	mg/L	2.0		2.0	once/quarter***	grab
Total Residual Chlorine (Note 2, Page 3)	µg/L	19 (130ML)		10 (130ML)	once/quarter***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test (See Special Condition 20)	TU <sub>a</sub>	*			once/year	grab
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WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

- \* Monitoring requirement only.
- \*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- \*\*\* See table below for quarterly sampling.

Minimum Sampling Requirements			
Quarter	Months	Effluent Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 <sup>th</sup>
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

<b>OUTFALL #001</b>	<b>TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>	PAGE NUMBER 3 of 7
		PERMIT NUMBER MO-0058068

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on August 1, 2015, and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (Note 1, Page 3)	MGD	*		*	once/quarter***	24 hr. estimate
Settleable Solids	mL/L/hr	1.0		1.0	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Fluoride	mg/L	2.0		2.0	once/quarter***	grab
Total Residual Chlorine (Note 2, Page 3)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test (See Special Condition 20)	TU <sub>a</sub>	*			once/year	grab
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WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

- \* Monitoring requirement only.
- \*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- \*\*\* See table below for quarterly sampling.

Minimum Sampling Requirements			
Quarter	Months	Effluent Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 <sup>th</sup>
Second	April, May, June	Sample at least once during any month of the quarter	July 28 <sup>th</sup>
Third	July, August, September	Sample at least once during any month of the quarter	October 28 <sup>th</sup>
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 <sup>th</sup>

Note 1 - Permittee shall keep records of the volume of all discharges, including pumping records, which can be used to calculate volume of discharge.

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

- (a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.
- (b) Disinfection is required year-round.
- (c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit.**
- (d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 µg/L” TRC.

## B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I standard conditions dated November 1, 2013, and hereby incorporated as though fully set forth herein.

## C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Water Quality Standards
  - (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
    - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
    - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
    - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
    - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
    - (5) There shall be no significant human health hazard from incidental contact with the water;
    - (6) There shall be no acute toxicity to livestock or wildlife watering;
    - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
    - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
4. Changes in Discharges of Toxic Substances  
The permittee shall notify the Director as soon as it knows or has reason to believe:
  - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    - (1) One hundred micrograms per liter (100 µg/L);
    - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    - (4) The level established by the Director in accordance with 40 CFR 122.44(f).
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
7. Permittee shall adhere to the following minimum Best Management Practices (BMPs):
  - (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
  - (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
  - (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
  - (d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
  - (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.
8. The purpose of the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.
9. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. If the presence of hydrocarbons is indicated, this water must be tested for Total Petroleum Hydrocarbons (TPH). The suggested analytical method for testing TPH is non-Halogenated Organic by Gas Chromatography method 8015 (also known as OA1 and OA2). However, if the permittee so desires to use other approved testing methods (i.e. EPA 1664), they may do so. If the concentration for TPH exceeds 10mg/L, the water shall be taken to a WWTP for treatment.
10. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the BMPs and made available to the department upon request.
11. Land application of sludge shall not exceed the most restrictive of the following criteria:
  - (a) Crop nitrogen fertilizer requirements
  - (b) ENM amount to raise soil pH per soil test recommendations for crop needs
  - (c) Metal limitations in University Extension publication WQ 425, Tables 3 & 4
  - (d) Pesticide amounts not to exceed 10 percent of the application rate on the pesticide label
12. Land applied sludge shall be tested at least once per year during land application periods for Total Kjeldahl Nitrogen, Arsenic, Aluminum, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium and Zinc. It shall also be tested for any pesticides or other significant contaminants present in the raw water supply. Report all results as mg/Kg on dry weight basis.
13. In addition, lime sludge that is land applied shall be tested at least once per year for ENM per MU Guide G9102, *Liming Missouri Soils* and G9107, *MO Limestone Quality: What is ENM?*, published by the University of Missouri Extension Service.
14. Soil tests shall be conducted at least once every 5 years before sludge application, during every 5<sup>th</sup> year when water treatment plant sludge is to be land applied. Soil shall be tested for Total Kjeldahl Nitrogen, Arsenic, Aluminum, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium and Zinc. It shall also be tested for any pesticides or other significant contaminants present in the raw water supply. Recommended guidance for soil sampling may be found in the MU Guides G9215, *Soil Sampling Pastures* and G9217, *Soil Sampling Hayfields and Row Crops*, published by the University of Missouri Extension Service.
15. Sludge and soil tests shall be maintained by the permittee for at least three years.
16. Lime sludge shall not be land applied if the soil pH exceeds pH 7.5 (salt based test) or pH 8.0 (water based test).

C. SPECIAL CONDITIONS (continued)

17. Land application of sludges containing aluminum additives (alum sludge, lime/alum sludge, etc.) shall meet the following additional requirements:
- (a) During years that sludge is land applied, sludge and soil must be tested once per year for total aluminum concentration on a dry weight basis and for soil pH.
  - (b) Land application sites shall be maintained at a soil pH between pH 5.5 to 7.5 based on the salt based pH test or 6.0 to 8.0 for water based test.
  - (c) Land application of sludge shall not exceed cumulative aluminum loadings of 4,000 pounds aluminum per acre above soil background levels. Background soil levels of aluminum shall be based on soil testing of the site prior to sludge application or testing of similar soils in the immediate vicinity.
  - (d) Permittees do not need to keep records of cumulative aluminum loading, if the sludge contains less than 40,000 ppm total aluminum on a dry weight basis and sludge application rates do not exceed 2 dry tons per acre per year.
  - (e) Sludge that contains more than 40,000 ppm total aluminum on a dry weight basis may be applied to land with established vegetation, or to land without established vegetation but with less than a 5% slope, or shall be incorporated into the ground by discing, plowing, or equivalent methods within two weeks after land application. Under no circumstances shall application result in sludge entering waters of the state.
18. Saturated/Frozen Conditions: There shall be no land application during frozen, snow covered, or saturated soil conditions, or when precipitation is imminent or occurring.

Buffer Zones: There shall be no land application within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling or public use areas; or 50 feet of the property line.

19. The Department may require the submittal of a site-specific sludge management plan where deemed appropriate to protect the environment.
20. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	Acute Toxic Unit (TU <sub>a</sub> )	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	*	once/year	grab	Any

\*Monitoring only

Dilution Series						
100%	50%	25%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

- a) Freshwater Species and Test Methods
- i. Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the fifth edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour static non-renewal toxicity tests with the following vertebrate species:
    - The fathead minnow, *Pimephales promelas* (Acute Toxicity Test Method 2000.0).

And the following invertebrate species:

    - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity Test Method 2002.0).
  - ii. Chemical and physical analysis of an upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available, synthetic laboratory control water may be used.
  - iii. Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.

C. SPECIAL CONDITIONS (continued)

- iv. Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
  - v. All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form. The parameters for chemical analysis include Temperature (°C), pH (SU), Conductivity (µmohs/cm), Dissolved Oxygen (mg/L), Total Residual Chlorine (mg/L), Un-ionized Ammonia (mg/L), Total Alkalinity (mg/L), and Total Hardness (mg/L).
- b) Reporting of Acute Toxicity Monitoring Results
- i. WET test results shall be submitted to the Southeast Regional Office with the permittee's Discharge Monitoring Reports, or by eDMR, by January 28 of each year. The submittal shall include:
    - 1. A full laboratory report for all toxicity testing.
    - 2. Copies of chain-of-custody forms.
    - 3. The WET form provided by the Department upon permit issuance.
  - ii. The report must include a quantification of acute toxic units ( $TU_a = 100/LC50$ ) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration, 50 Percent (LC50) is the toxic or effluent concentration that would cause death in 50 percent of the test organisms over a specified period of time.
- c) Permit Reopener for Acute Toxicity
- In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include effluent limitations or permit conditions to address acute toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to acute toxicity.

D. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations for Settleable Solids and Total Residual Chlorine as soon as reasonably achievable or **no later than one (1) year of the effective date of this permit.**

**Missouri Department of Natural Resources**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0058068**  
**FORT LEONARD WOOD WATER TREATMENT PLANT**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for an Industrial Facility.

**Part I – Facility Information**

Facility Type: Industrial  
Facility SIC Code(s): 4941

**Facility Description:**

Water Treatment Plant – Drinking Water Supply  
Sedimentation basin for water treatment plant sludge and filter backwash water / dechlorination system / land application of sludge by contract operator.  
Design flow is 4.70 MGD.  
Actual flow is 0.603 MGD.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- Yes, the permittee submitted an engineering evaluation of the design flow for the facility. It was determined that the capacity of the facility is actually 4.7 MGD. This has been reflected in the permit. This new design flow does not have any effect on the effluent limitation derivations.

Application Date: 08/08/2011  
Expiration Date: 12/07/2011  
Last Inspection: 12/19/2009      In Compliance ;      Non-Compliance

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
001	0.64	Secondary	Filter backwash
Land Application Area	Dredged as needed	Land Application	Sludge from sedimentation basin

**Facility Performance History & Comments:**

The last routine site-inspection to determine compliance was conducted on December 19, 2009. The facility was found to be in non-compliance during the time of the inspection. The following deficiencies were noted in the inspection report and contributed to the determination of non-compliance.

- Exceedance of Total Residual Chlorine (TRC) final effluent limitations in samples taken at outfall and downstream. These samples were found to contain 0.45mg/L and 0.42 mg/L of TRC, respectively. Both samples exceed the permit limitations of 0.019 mg/L of TRC.

- Sedimentation basin appeared to be at or nearing sludge storage capacity and was encroaching upon outfall structure.

A Notice of Violation (NOV) was issued as a result of this inspection. However, the facility has since installed a dechlorination system in order to return the facility to compliance with the effluent limitations for TRC.

**Part II – Receiving Stream Information**

Receiving Water Body’s Water Quality

There are no stream surveys recorded in the Department’s database for either the unnamed tributary to the Big Piney River (U) or the Big Piney River (P). No Total Maximum Daily Load (TMDL) reports exist for either stream.

**APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:**

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall’s Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Losing [10 CSR 20-7.015(4)]:
- Metropolitan No-Discharge [10 CSR 20-7.015(5)]:
- Special Stream [10 CSR 20-7.015(6)]:
- Subsurface Water [10 CSR 20-7.015(7)]:
- All Other Waters [10 CSR 20-7.015(8)]:

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1<sup>st</sup> classified receiving stream’s beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

**RECEIVING STREAM(S) TABLE:**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	DISTANCE TO CLASSIFIED SEGMENT	12-DIGIT HUC**
Unnamed tributary to Big Piney River	U	N/A	GEN	1.00 to tributary 1.45 to losing	10290202-0403
Big Piney River	P	1566	AQL, CLF, DWS, GEN, IRR, LWW, SCR, WBC-A	2.10	

\* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), General Criteria (GEN), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW). \*\* - Hydrologic Unit Code

**RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:**

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to Big Piney River (U)	0.0	0.0	0.0

**MIXING CONSIDERATIONS:**

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].  
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

**RECEIVING STREAM MONITORING REQUIREMENTS:**

No receiving water monitoring requirements recommended at this time.

### **Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions**

#### **ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable; The facility does discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)]; however, **is an existing facility** with technology already established to comply with the permit.

#### **ANTI-BACKSLIDING:**

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

#### **ANTIDegradation:**

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- Renewal no degradation proposed and no further review necessary.

#### **BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Sludge/biosolids are removed and land applied by contract hauler.

#### **COMPLIANCE AND ENFORCEMENT:**

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable; The permittee/facility is not currently under Water Protection Program enforcement action.

#### **REASONABLE POTENTIAL ANALYSIS (RPA):**

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Not Applicable; A RPA was not conducted for this facility.

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable;

The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The permittee has been granted a one year schedule to make operational adjustments in order to meet the more stringent requirements for existing parameters Fluoride and TRC. This provides adequate time to make the necessary operational changes.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable; At this time, the permittee is not required to develop and implement a SWPPP.

**SPILL REPORTING:**

Per 10 CSR 24-3.010, any emergency involving a hazardous substance must be reported to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the Noncompliance Reporting requirement found in Standard Conditions Part I.

**VARIANCE:**

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable; This operating permit is not drafted under premises of a petition for variance.

**WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:**

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Not Applicable; Wasteload allocations were not calculated.

**WLA MODELING:**

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Not Applicable; A WLA study was either not submitted or determined not applicable by Department staff.

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable;

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by all facilities meeting the following criteria:

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- Facility is a municipality or domestic discharger with a Design Flow  $\geq$  22,500 gpd.
- Other – please justify.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Not Applicable; This facility does not discharge to a 303(d) listed stream.

## Part IV – Effluent Limits Determination

### **Outfall #001 – Main Facility Outfall**

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

#### **EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD	*		*	NO	*/*
SETTLABLE SOLIDS	ML/L/HR	1.0		1.0	YES	1.0
pH	SU	6.5-9.0		6.5-9.0	YES	6.0-9.0
CHLORINE, TOTAL RESIDUAL	µG/L	17		8	YES	19/10
FLUORIDE	MG/L	2.0		2.0	NO	2.0/2.0
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	Please see WET Test in the Derivation and Discussion Section below.				

\* - Monitoring requirement only.

\*\* - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.

\*\*\* - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.

\*\*\*\* - Parameter not previously established in previous state operating permit.

#### **OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:**

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Settleable Solids.** It is the permit writer's best professional judgment to continue implementing effluent limitations for settleable solids. In order to ensure adequate capturing of softening residuals and sedimentation, the permit writer is adding a Monthly Average Limit of 1.0 mL/L/hr to the permit. According to the most recent site-inspection report, the sedimentation in the basin is high. Requiring the facility meet settleable solids limits will ensure the sedimentation does not release into the environment. These limits are also consistent with other water treatment plant permits and the MO-G64 general permit for water treatment plant dischargers.
- **pH.** – 6.5-9.0 SU. Technology based effluent limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU. No mixing zone is allowed due to the classification of the receiving stream, therefore the water quality standard must be met at the outfall.
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

$$\text{Chronic WLA: } C_c = ((0.64 + 0.0)10 - (0.0 * 0.0))/0.64$$

$$C_c = 10 \mu\text{g/L}$$

$$\text{Acute WLA: } C_c = ((0.64 + 0.0)19 - (0.0 * 0.0))/0.64$$

$$C_c = 19 \mu\text{g/L}$$

$$\text{LTA}_c = 10 (0.527) = 5.3 \mu\text{g/L}$$

$$\text{LTA}_a = 19 (0.321) = 6.1 \mu\text{g/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of  $\text{LTA}_c$  or  $\text{LTA}_a$ .

$$\text{MDL} = 5.3 (3.11) = 17 \mu\text{g/L}$$

$$\text{AML} = 5.3 (1.55) = 8 \mu\text{g/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$[\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Fluoride.** The previous permit did not provide justification for requiring a Maximum Daily Limit and an Average Monthly Limit of 2.0 mg/L. The facility does use fluoride in the drinking water treatment process. In accordance with the Safe Drinking Water Act, the maximum contaminant level goal (MCLG) for fluoride is 4.0 mg/L. The Missouri Clean Water Law (10 CSR 20-7) mirrors this requirement for the use designation for Groundwater (GRW) and for Drinking Water Supply (DWS). Due to the losing setting, the permit writer feels that the limit for fluoride should be at least 4.0mg/L. Further research into federal requirements produced justification for the 2.0 mg/L requirement set in the previous permit. The EPA has set a secondary standard (SMCL) for fluoride at 2.0 mg/L in drinking water. The permit writer has used best professional judgment to continue requiring the limit of 2.0 mg/L for fluoride. Due to the losing setting, it is unknown whether the discharge flows into a drinking water supply or not. In order to ensure adequate protection, the facility will be required to meet an effluent limitation of 2.0 mg/L for a Maximum Daily Limit and an Average Monthly Limit.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.
  - Acute
  - No less than ONCE/YEAR:**
    - Facility is designated as a Major facility or has a design flow  $\geq 1.0$  MGD.
    - Facility continuously or routinely exceeds their design flow.
    - Facility exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
    - Facility has Water Quality-based effluent limitations for toxic substances (other than NH<sub>3</sub>).

Acute Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

## **Part V – Finding of Affordability**

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a finding of affordability upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. Where permit modifications, permit renewals, or sewer extensions do not impose new requirements and/or do not require rate increases, the affordability finding may receive a less detailed review. Permits that do not include new requirements may be deemed affordable.

- The Department is not required to determine findings of affordability because the permit contains no new conditions or requirements that convey a new cost to the facility. The facility has already installed a dechlorination system that will meet the more stringent TRC limits. Additionally, the facility may need to adjust holding times in the settling basin to meet the new Monthly Average Limit for Settleable Solids. Adequate technology has already been constructed; therefore, the permit writer has concluded that this permit will not require any additional costs to the United State Army.

## **Part VI – Administrative Requirements**

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

### **PERMIT SYNCHRONIZATION:**

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than three years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit began on May 23, 2014 and ended on June 23, 2014. The permittee submitted comments during the Public Notice. These comments and the Department's actions are noted below.

1. The permittee stated that with the new design flow of 4.7 million gallon per day, the statement that the facility routinely exceeds design flow on page 5 of the Factsheet is no longer applicable. The Department disagrees with the determination that consideration of these exceedances is no longer application. During the time of measuring the actual flow, the design flow was set at 135,000 gallon per day. These values should not be ignored because now the design flow has been re-engineered. However, this has no effect on the permit conditions, so this note has been removed from page 5 of the Factsheet.
2. The permittee requests that the annual WET test requirement be changed to once/permit cycle. The Department cannot grant this request. The facility has been designated a major and discharges toxic pollutants. To ensure the toxicity is at an acceptable level, the WET test must be performed. The annual WET test requirement has been retained in the permit.

**DATE OF FACT SHEET:** APRIL 2, 2014

### **COMPLETED BY:**

**LOGAN COLE, ENVIRONMENTAL SPECIALIST  
MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM  
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STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
NOVEMBER 1, 2013

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

## Part I – General Conditions

### Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
  - a. Records of monitoring information shall include:
    - i. The date, exact place, and time of sampling or measurements;
    - ii. The individual(s) who performed the sampling or measurements;
    - iii. The date(s) analyses were performed;
    - iv. The individual(s) who performed the analyses;
    - v. The analytical techniques or methods used; and
    - vi. The results of such analyses.
  - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
  - a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
  - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

### Section B – Reporting Requirements

1. **Planned Changes.**
  - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
    - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
    - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
    - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
    - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Twenty-Four Hour Reporting.**
  - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
    - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
    - ii. Any upset which exceeds any effluent limitation in the permit.
    - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
  - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
- a. **Twenty-Four Hour (24-Hour) Reporting.** The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. Relevant information shall be provided orally or via the current electronic method approved by the Department within 24 hours from the time the permittee becomes aware of the incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
  - b. **Incidents Reported via Discharge Monitoring Reports (DMRs).** The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.
4. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
5. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
7. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
8. **Discharge Monitoring Reports.**
- a. Monitoring results shall be reported at the intervals specified in the permit.
  - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
  - c. Monitoring results shall be reported to the Department no later than the 28<sup>th</sup> day of the month following the end of the reporting period.

## Section C – Bypass/Upset Requirements

1. **Definitions.**
  - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility.
  - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
  - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
  - b. Notice.
    - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
    - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
  - c. Prohibition of bypass.
    - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
      1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      3. The permittee submitted notices as required under paragraph 2. b. of this section.
    - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
  - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
  - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
    - ii. The permitted facility was at the time being properly operated; and
    - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
    - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
  - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.



STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
NOVEMBER 1, 2013

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
  - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
  - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
  - c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
  - d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
  - a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
  - b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
  - c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
  - a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
    - i. Violations of any terms or conditions of this permit or the law;
    - ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
    - iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
    - iv. Any reason set forth in the Law or Regulations.
  - b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.



STANDARD CONDITIONS FOR NPDES PERMITS  
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7. **Permit Transfer.**
  - a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
  - b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
  - c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
  - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
  - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
  - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
  - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.



DEPARTMENT OF THE ARMY  
INSTALLATION MANAGEMENT AGENCY  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT LEONARD WOOD  
320 MANSCEN LOOP STE 120  
FORT LEONARD WOOD, MISSOURI 65473-8929

Environmental Office

*pol 08/08/11*  
Mr. Bruce Volner  
Missouri Department of Natural Resources  
Rolla Satellite Office  
Post Office Box 250  
Rolla, Missouri 65402-0250

Dear Mr. Volner:

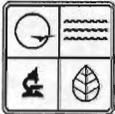
Please find enclosed the permit renewal application and required supporting documentation for renewal of discharge permit MO-0058068. If there are any questions, please contact Carl Stenger at (573) 596-0131, extension 63723 at the Directorate of Public Works Environmental Division.

Sincerely,

Bobby N. Rakes, Jr  
Director of Public Works

Enclosures





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM A – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT  
 UNDER MISSOURI CLEAN WATER LAW**

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

**Note** ▶ PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM.

1. This application is for:

- An operating permit and antidegradation review public notice
- A construction permit following an appropriate operating permit and antidegradation review public notice
- A construction permit and concurrent operating permit and antidegradation review public notice
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
- An operating permit for a new or unpermitted facility Construction Permit # \_\_\_\_\_
- An operating permit renewal: permit # MO- 0058068 Expiration Date \_\_\_\_\_
- An operating permit modification: permit # MO- Reason: \_\_\_\_\_

1.1 Is the appropriate fee included with the application? (See instructions for appropriate fee)  YES  NO

**2. FACILITY**

NAME Fort Leonard Wood Water Treatment Plant <span style="color: red; font-size: 2em;">7516</span>		TELEPHONE WITH AREA CODE (573) 596-0589	
		FAX (573) 596-0080	
ADDRESS (PHYSICAL) Building 1601	CITY Fort Leonard Wood	STATE MO	ZIP CODE 65473

**3. OWNER**

NAME Installation Management Command (IMCOM) and Fort Leonard Wood		E-MAIL ADDRESS	TELEPHONE WITH AREA CODE (573) 596-0840
			FAX (573) 596-0174
ADDRESS (MAILING) 1334 1st Street	CITY Fort Leonard Wood	STATE MO	ZIP CODE

3.1 Request review of draft permit prior to public notice?  YES  NO

**4. CONTINUING AUTHORITY**

NAME Same as Owner		TELEPHONE WITH AREA CODE	
		FAX	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE

**5. OPERATOR**

NAME Shane Harrell		CERTIFICATE NUMBER 4866	TELEPHONE WITH AREA CODE (573) 596-0589
			FAX (573) 596-0080
ADDRESS (MAILING) Building 1601	CITY Fort Leonard Wood	STATE MO	ZIP CODE 65473

**6. FACILITY CONTACT**

NAME Carl Stenger		TITLE Physical Scientist	TELEPHONE WITH AREA CODE (573) 596-0882
			FAX (573) 596-0869

**7. ADDITIONAL FACILITY INFORMATION**

7.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)

001 Cntr 1/4 NE 1/4 Sec 23 T 35N R 11W County  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_  
*For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)*

002 1/4 1/4 Sec \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ County  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_

003 1/4 1/4 Sec \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ County  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_

004 1/4 1/4 Sec \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ County  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_

7.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.

001 – SIC 4941 and NAICS \_\_\_\_\_ 002 – SIC \_\_\_\_\_ and NAICS \_\_\_\_\_  
 003 – SIC \_\_\_\_\_ and NAICS \_\_\_\_\_ 004 – SIC \_\_\_\_\_ and NAICS \_\_\_\_\_

AP 6/15 08/09/11

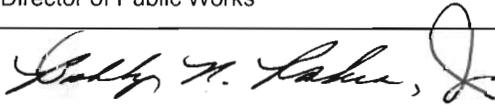
**8. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION**  
 (Complete all forms that are applicable.)

A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
B.	Is your facility considered a "Primary Industry" under EPA guidelines: If yes, complete Forms C and D.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
C.	Is application for storm water discharges only? If yes, complete EPA Form 2F.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
D.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		
E.	Is wastewater land applied? If yes, complete Form I.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
F.	Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? If yes, complete Form R.	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

**9. DOWNSTREAM LANDOWNER(S)** Attach additional sheets as necessary. See Instructions.  
 (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE).

NAME United States Government			
ADDRESS	CITY	STATE	ZIP CODE

**10.** I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law to the Missouri Clean Water Commission.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Bobby N. Rakes Jr., Director of Public Works	TELEPHONE WITH AREA CODE (573) 596-0840
SIGNATURE 	DATE SIGNED 03 AUG 11

MO 780-1479 (01-09)

**BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.**

Submittal of an incomplete application may result in the application being returned.

HAVE YOU INCLUDED:

- Appropriate Fees?
- Map at 1" = 2000' scale?
- Signature?
- Form C, if applicable?
- Form D, if applicable?
- Form 2F, if applicable?
- Form I (Irrigation), if applicable?
- Form R (Sludge), if applicable?



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH  
 (SEE MAP FOR APPROPRIATE REGIONAL OFFICE)  
**FORM R – PERMIT APPLICATION FOR LAND APPLICATION  
 OF INDUSTRIAL WASTEWATER BIOSOLIDS AND RESIDUALS**

**FOR AGENCY USE ONLY**

PERMIT NUMBER  
 MO -  
 DATE RECEIVED

**INSTRUCTIONS:** FORMS A & C or F (CAFOs) (and D where applicable) must also be submitted for land application of industrial wastewater sludge biosolids or residuals. Submit FORMS E and G for land disturbance permit if construction areas total five acres or more.

Attach FORM I, if wastewater will be land applied or irrigated.

**1.00 FACILITY INFORMATION**

1.10 Facility Name

Water Treatment Plant

1.20 Application for:  Construction Permit (attach Engineering report, Plans and Specifications per 10 CSR 20-8.020)  
 Operating Permit (if no construction permit, attach engineering documents)  
 Date Land Application System Began Operation: \_\_\_\_\_  
 Operating Permit Renewal

1.30 Months when the business or enterprise will operate or generate sludge or residuals:  
 12 months per year  Part of year (list Months): \_\_\_\_\_

1.40 List the Facility outfalls which will be applicable to the land application system from outfalls listed on Form A, C, D and F.  
 Outfall Nos. 001 \_\_\_\_\_

**2.00 STORAGE BASINS**

2.10 Number of storage basins: 1 Type of basin:  Steel  Concrete  Fiberglass  Earthen  
 Earthen with membrane liner

2.20 Storage basin dimensions at inside top of berm (feet): Report freeboard as feet from top of berm to emergency spillway or overflow pipe.  
 (Complete Attachment A: Profile Sketch)  
 Basin #1: Length 110ft Width 120ft Depth 15ft Freeboard 9ft Berm Width 30ft % Slope 43%  
 Basin #2: Length \_\_\_\_\_ Width \_\_\_\_\_ Depth \_\_\_\_\_ Freeboard \_\_\_\_\_ Berm Width \_\_\_\_\_ % Slope \_\_\_\_\_

2.21 Storage basin volumes (gallons): Permanent volume means two foot water depth for seal protection, and any required treatment volume capacity.  
 Basin #1: Gallons: 9758 Permanent Volume + \_\_\_\_\_ Storage = \_\_\_\_\_ Total volume (gallons)  
 Basin #2: Gallons: \_\_\_\_\_ Permanent Volume + \_\_\_\_\_ Storage = \_\_\_\_\_ Total volume (gallons)

2.30 Storage Basin operating levels (report as feet below emergency overflow level)  
 Basin #1: Maximum water level 10 ft. Minimum operating water level 22 ft.  
 Basin #2: Maximum water level \_\_\_\_\_ ft. Minimum operating water level \_\_\_\_\_ ft.

2.40 Storage Basin design storage capacity: (storage between minimum and maximum operating levels for 1-in10 year storm water flows.) *Basin dredged (as necessary) every 5-10 years. Basin discharge is monitored through NPDES permit MO-0058066.*  
 Basin #1: \_\_\_\_\_ days Basin #2: \_\_\_\_\_ days Basin #3: \_\_\_\_\_ days

2.50 Attach Water Balance Test results to verify earthen basin seal in accordance with 10 CSR 20-8.020(13) and (16), when required by the department.

2.60 Attach a sludge management plan for materials that are not land applied.

2.70 Attach a closure plan for lagoons, storage basins and treatment units.

**3.00 LAND APPLICATION SYSTEM**

3.10 Number of application sites 1 Total Available Acres \_\_\_\_\_ Minimum & Maximum % field slopes \_\_\_\_\_  
 Location: NE ¼ SE ¼ SW ¼ \_\_\_\_\_ Sec. 35N T 11WR \_\_\_\_\_ County \_\_\_\_\_ Acres  
 Location: \_\_\_\_\_ ¼ NW ¼ NW ¼ \_\_\_\_\_ Sec. 35N T 11WR \_\_\_\_\_ County \_\_\_\_\_ Acres  
 Attach extra sheets as necessary.

3.12 Type of vegetation:  Grass hay  Pasture  Timber  Row crops  Other (describe) \_\_\_\_\_  
 Specific Crops and Yields/acre: \_\_\_\_\_ Goal: \_\_\_\_\_ Actual for last five years: \_\_\_\_\_

3.20 Annual sludge production (gallons per year): N/A Actual N/A Design ## (dry tons per year): N/A Actual N/A Design ## (5-10 yr intervals)  
Human Population Equivalent: 28,500 Actual 50,000 Design Basin dredged; land applied as needed.

3.21 Land Application rate per acre: Applied roughly every 10 years to land.  
Design: \_\_\_\_\_ dry ton/year \_\_\_\_\_ dry ton/application \_\_\_\_\_ No. applications/year  
Actual: \_\_\_\_\_ dry ton/year 2 dry ton/application \_\_\_\_\_ No. applications/year  
Total amount land applied each year (total all sites) Design \_\_\_\_\_ dry ton/year Actual \_\_\_\_\_ dry ton/year  
Actual months used for land application:  Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  
 Oct  Nov  Dec

3.22 Land Application Rate is based on:  
 Nutrient Management Plan (N&P)  PAN  Conservative  
 Hydraulic Loading  Limiting Pollutant (Specify) aluminum  
 Other (describe) \_\_\_\_\_

3.30 Equipment type:  Tank wagon  Tank truck  Subsurface injection  Slinger spreader  Dry spreader  
 Other (describe) Land application of dredged sludge is a contract application  
Equipment Capacity: \_\_\_\_\_ Gallons (cubic feet) per hour \_\_\_\_\_ Total hours of operation per year

3.40 Public Use/Access Sites: If public use or access to land application site, describe pathogen treatment and site access restrictions. If human, animal, or organic wastes, refer to 40 CFR 503.32 for pathogen treatment methods. Attach extra sheets as necessary.

3.50 Separation distance (in feet) from the outside edge of the biosolids application area to down gradient features:  
\_\_\_\_\_ Permanent flowing stream \_\_\_\_\_ Losing Stream \_\_\_\_\_ Intermittent (wet weather) stream \_\_\_\_\_ Lake or pond  
X \_\_\_\_\_ Property boundary \_\_\_\_\_ Dwellings \_\_\_\_\_ Water supply well \_\_\_\_\_ Other (describe) \_\_\_\_\_

3.60 SOILS INFORMATION: Use information from the County Soil Survey, NRCS, or professional soil scientist.  
NOTE: On-site soils classification by a professional soil scientist may be required by the department where appropriate.  
Soil Series Name \_\_\_\_\_ Depth of bedrock \_\_\_\_\_ Feet Depth to water table \_\_\_\_\_ Feet  
Soil Infiltration rate in inches/hour (in/hr) for most restrictive layer within the following soil depth ranges:  
\_\_\_\_\_ In/hr for 0-12 inch soil depth \_\_\_\_\_ In/hr for 12-24 inch soil depth \_\_\_\_\_ In/hr for 24-60 inch soil depth

3.70 Attach Nutrient Management Plan (NMP) including calculations for plant available nitrogen (PAN) and other nutrients, crop requirements, crop yields and other management factors. Include USDA/NRCS phosphorus recommendations.

3.80 Geologic Investigation: \_\_\_\_\_ Date of most recent Geologic Report by Department's Division of Geology and Land Survey.

3.81 Ground Water Monitoring Wells: (Attach Groundwater Monitoring Plan when required by department) Contract operations refer to 3.30  
 NONE  EXISTING  PLANNED NUMBER: \_\_\_\_\_ Monitoring Wells \_\_\_\_\_ Lysimeters

3.90 Attach a current copy of the Operation and Maintenance (O&M) Plan for the land application system. Date of O&M Plan: \_\_\_\_\_

3.91 Attach a site map showing topography, storage basins, land application sites, property boundary, streams, wells, roads, dwellings and other pertinent features. Enclosure A

3.92 Attach a facility sketch showing treatment units, storage basins, pipelines, application sites and other features. Enclosure B

**4.00 INDUSTRIAL PROCESS INFORMATION**

4.10 Brief description of treatment processes prior to land application and note any changes made in last five years. (Attach extra sheets as necessary.)  
\_\_\_\_\_ Polymer added for thickening.

4.11 Detailed description of industrial production processes. Also indicate any changes made in last five years. (attach extra sheets as necessary)  
Water Treatment Plant

# **ENCLOSURE A**



# Site Map





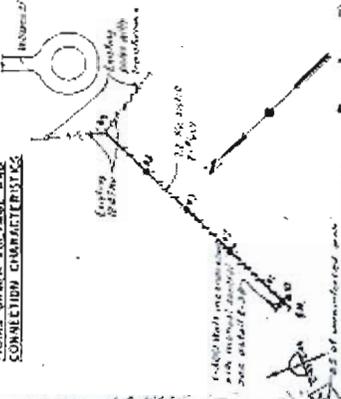
# Site Map



**SUPPLEMENTARY LEGEND**

- 1. 12 kV primary
- 2. 12 kV secondary
- 3. 12 kV tertiary
- 4. 12 kV quaternary
- 5. 12 kV quinary
- 6. 12 kV senary
- 7. 12 kV septenary
- 8. 12 kV octonary
- 9. 12 kV nonary
- 10. 12 kV decary
- 11. 12 kV undecary
- 12. 12 kV duodecary

**TRANSFORMER VOLTAGE AND CONNECTION CHARACTERISTICS**



**DESCRIPTION PLAN**  
 For pole primary  
 12 kV, 3000 ft. C.L.

**POLE AND STRUCTURE SCHEDULE**

NO.	TYPE	HEIGHT	NO. OF POLES	NO. OF SPANS	NO. OF STRUCTURES
1	12 kV	11.1	11	11	11
2	12 kV	11.1	11	11	11
3	12 kV	11.1	11	11	11
4	12 kV	11.1	11	11	11
5	12 kV	11.1	11	11	11
6	12 kV	11.1	11	11	11
7	12 kV	11.1	11	11	11
8	12 kV	11.1	11	11	11
9	12 kV	11.1	11	11	11
10	12 kV	11.1	11	11	11
11	12 kV	11.1	11	11	11
12	12 kV	11.1	11	11	11

**RECORD DRAWING**



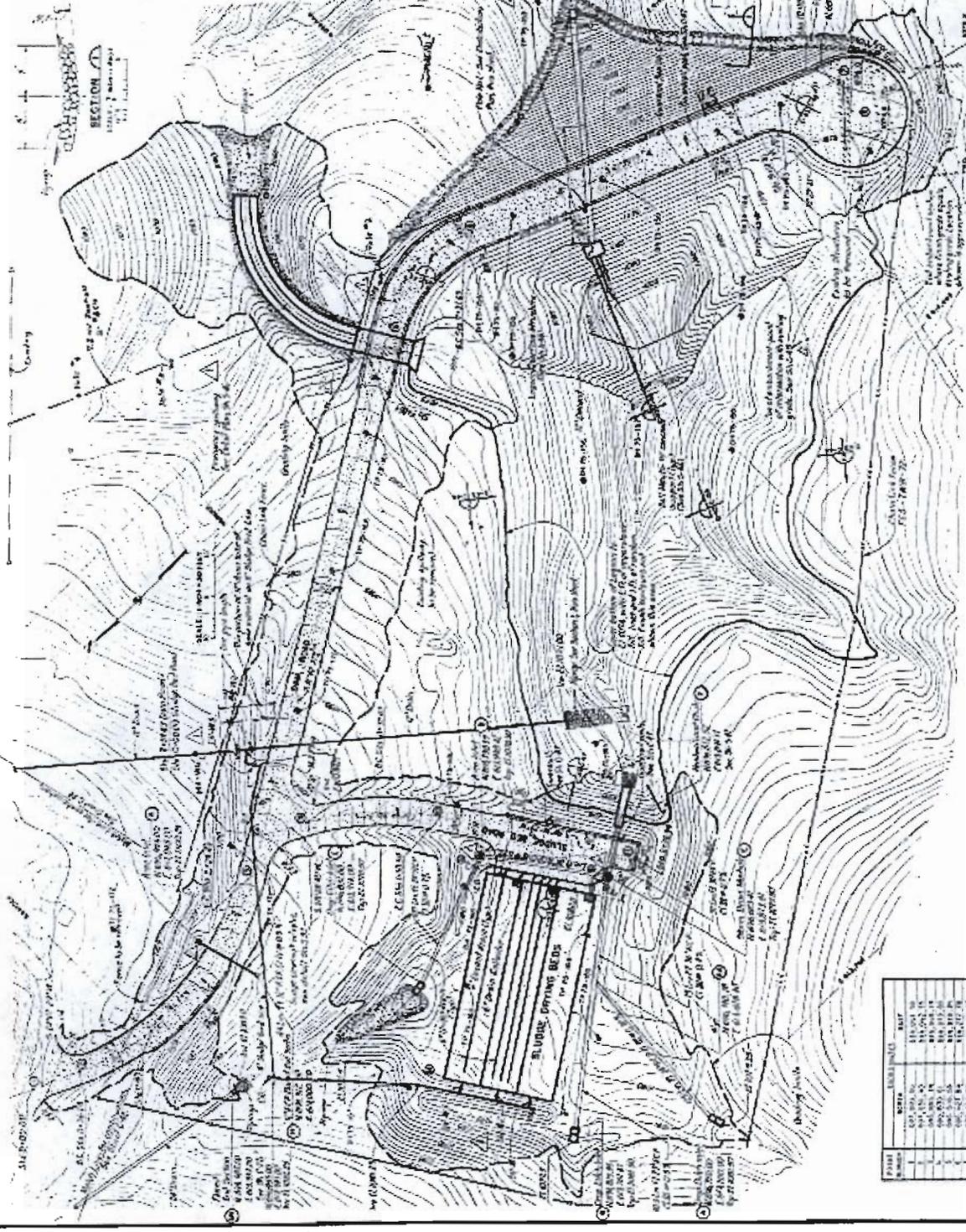
**RECORD DRAWING**

PROJECT NO. 12345  
 SHEET NO. 12345  
 DATE 12/31/1918

**U.S. ARMY ENGINEER DISTRICT**  
 DISTRICT NO. 12345  
 OFFICE NO. 12345

**WATER AND SEWERAGE PLANT IMPROVEMENTS**  
 PROJECT NO. 12345  
 SHEET NO. 12345

**DESIGNED BY** [Name]  
**CHECKED BY** [Name]  
**APPROVED BY** [Name]



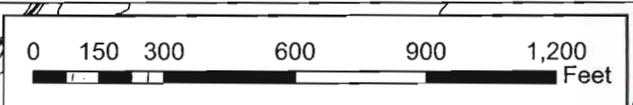
Notes:  
 1. See plan for details of construction.  
 2. See notes on sheets 12345-12345.  
 3. See notes on sheets 12345-12345.  
 4. See notes on sheets 12345-12345.  
 5. See notes on sheets 12345-12345.

**SECTION 1**

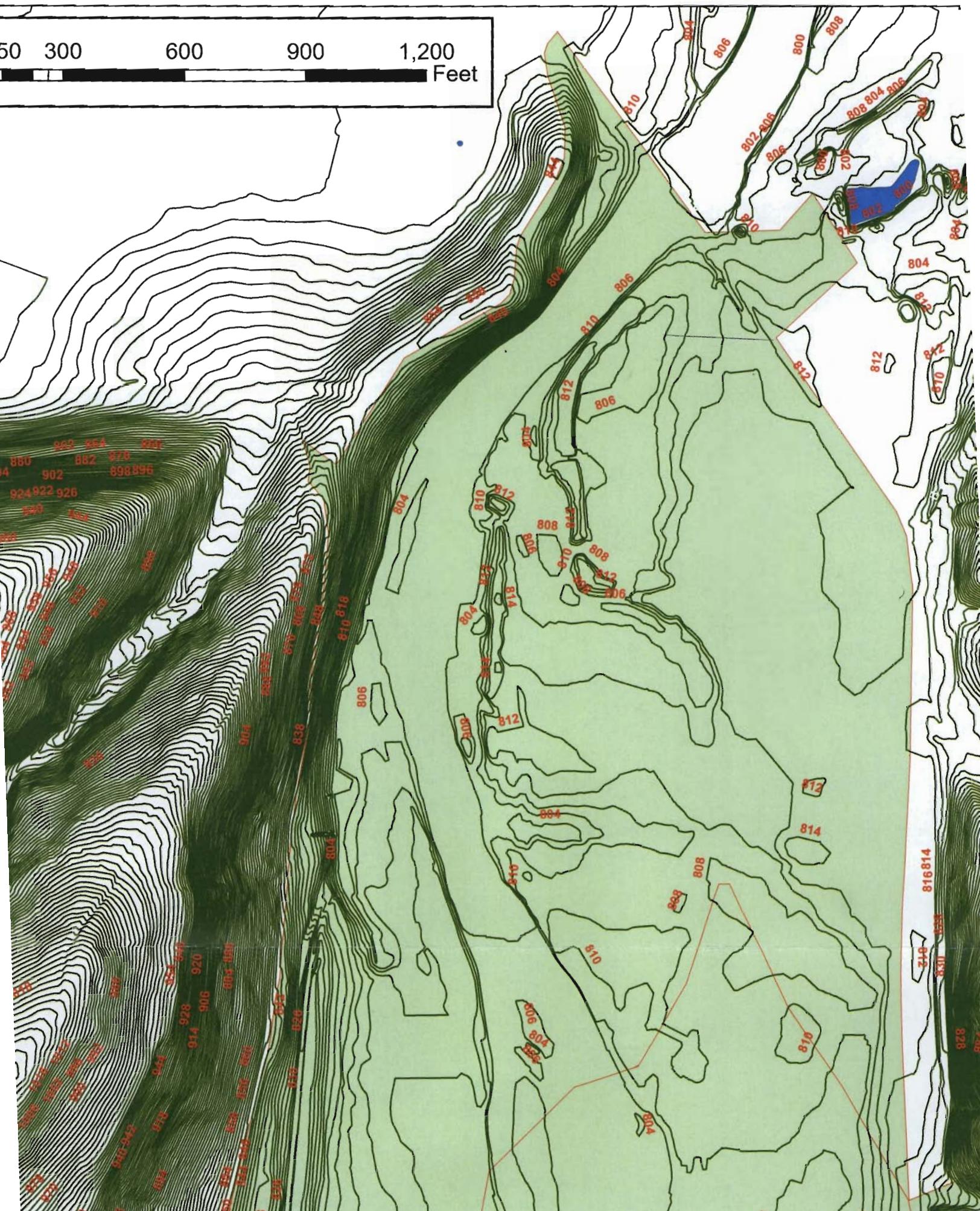
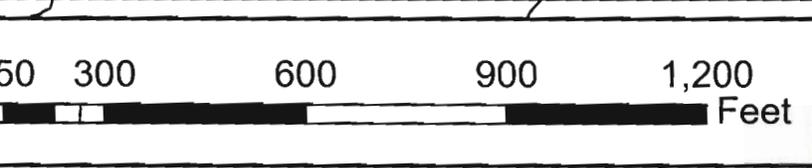
NO.	TYPE	HEIGHT	NO. OF POLES	NO. OF SPANS	NO. OF STRUCTURES
1	12 kV	11.1	11	11	11
2	12 kV	11.1	11	11	11
3	12 kV	11.1	11	11	11
4	12 kV	11.1	11	11	11
5	12 kV	11.1	11	11	11
6	12 kV	11.1	11	11	11
7	12 kV	11.1	11	11	11
8	12 kV	11.1	11	11	11
9	12 kV	11.1	11	11	11
10	12 kV	11.1	11	11	11
11	12 kV	11.1	11	11	11
12	12 kV	11.1	11	11	11

**SECTION 2**

NO.	TYPE	HEIGHT	NO. OF POLES	NO. OF SPANS	NO. OF STRUCTURES
1	12 kV	11.1	11	11	11
2	12 kV	11.1	11	11	11
3	12 kV	11.1	11	11	11
4	12 kV	11.1	11	11	11
5	12 kV	11.1	11	11	11
6	12 kV	11.1	11	11	11
7	12 kV	11.1	11	11	11
8	12 kV	11.1	11	11	11
9	12 kV	11.1	11	11	11
10	12 kV	11.1	11	11	11
11	12 kV	11.1	11	11	11
12	12 kV	11.1	11	11	11



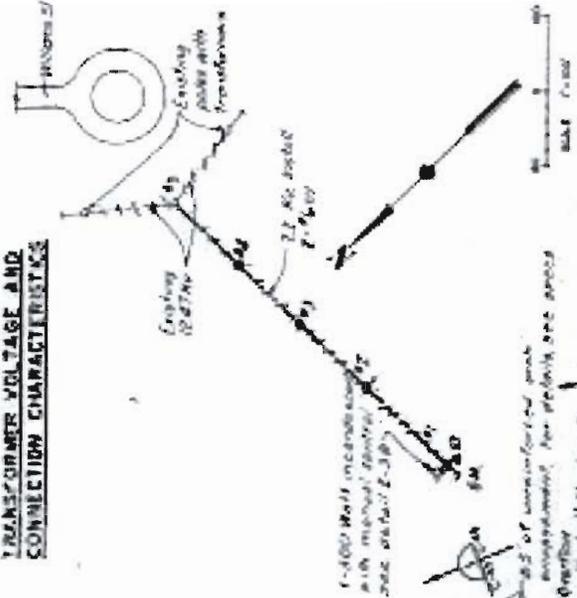




SECTION 7.1  
SCALE 1" = 100' HORIZ.  
1" = 20' VERT.



**TRANSFORMER VOLTAGE AND CONNECTION CHARACTERISTICS**



**DISTRIBUTION PLAN**

For pole proximity  
check see 301.1-10

**POLE AND STRUCTURE SCHEDULE**

POLE NO.	HEIGHT A.C. (FEET)	STRUCTURE	POLE NO. 301.1-10	NOTES
1	20-0	19-0	11	
2	20-0	20-0	5	
3	20-0	20-0	5	
4	20-0	20-0	5	
5	-	20-0, 20-0	5	EXISTING POLE

"THE SPICE FOR POLE NO. 301.1-10"



**RECORD DRAWING**

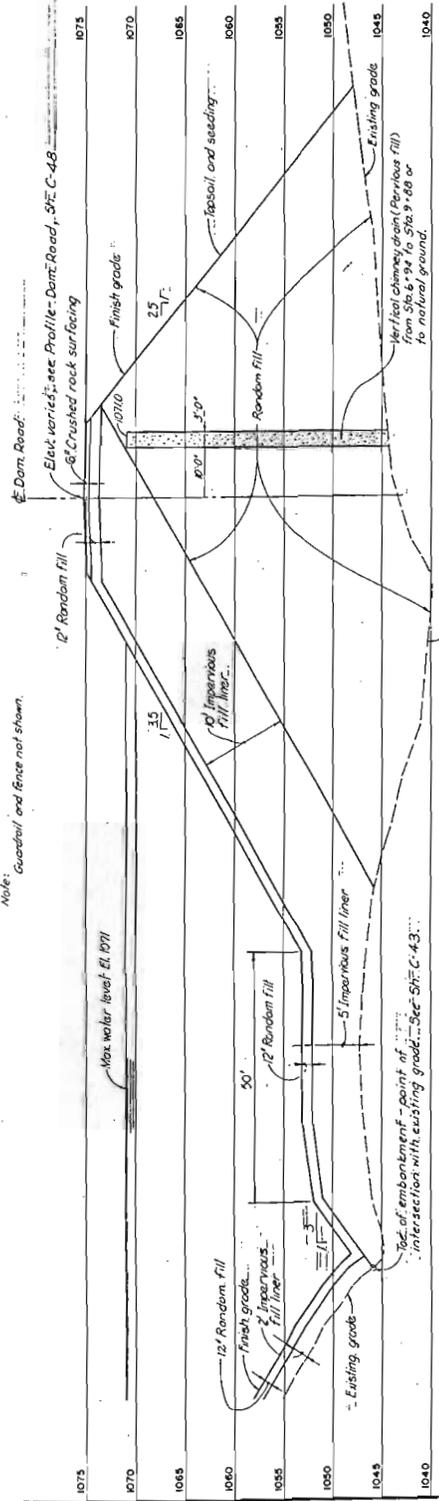
317-00

NO.	DATE	BY	CHECKED

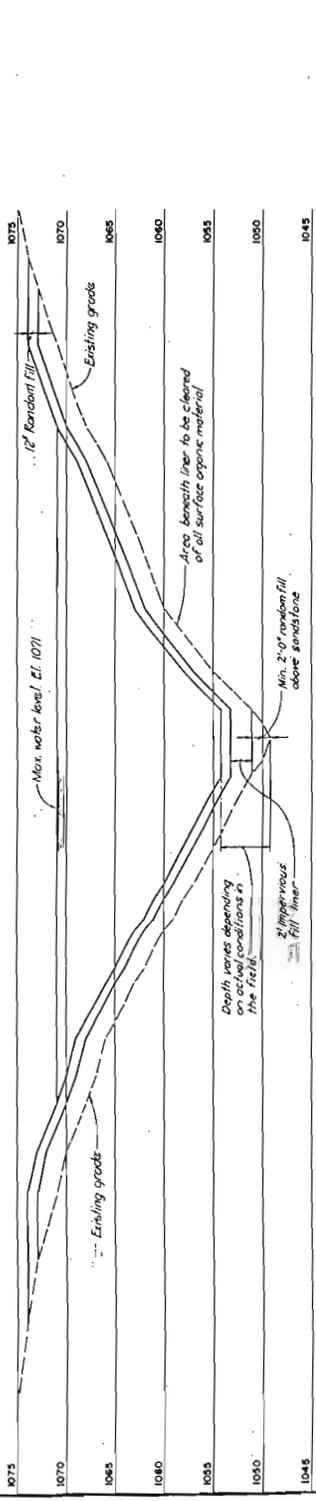
U. S. ARMY ENGINEERS CORPS OF ENGINEERS  
WASHINGTON, D. C.

**ENCLOSURE B**

Notes:  
Guardrail and fence not shown.



SECTION C-43 C-44



SECTION C-43 C-45

RECORD DRAWING

PROJECT NO.	DATE	SCALE
BLACK & VEATCH ENGINEERS CONRAD CITY, MISSOURI	U. S. ARMY ENGINEER DISTRICT CHICAGO, ILLINOIS CONRAD CITY, MISSOURI	STATE OF MISSOURI FORT LEONARD WOOD ENGINEER DISTRICT
DESIGNED BY: [Signature]	CHECKED BY: [Signature]	APPROVED BY: [Signature]
DATE: [Date]	DATE: [Date]	DATE: [Date]
LIGON SECTION		
WATER AND SEWAGE PLANT IMPROVEMENTS		
SHEET C-43 OF 43		



HORIZONTAL SCALE: 1" = 100 FEET  
VERTICAL SCALE: 1" = 5 FEET

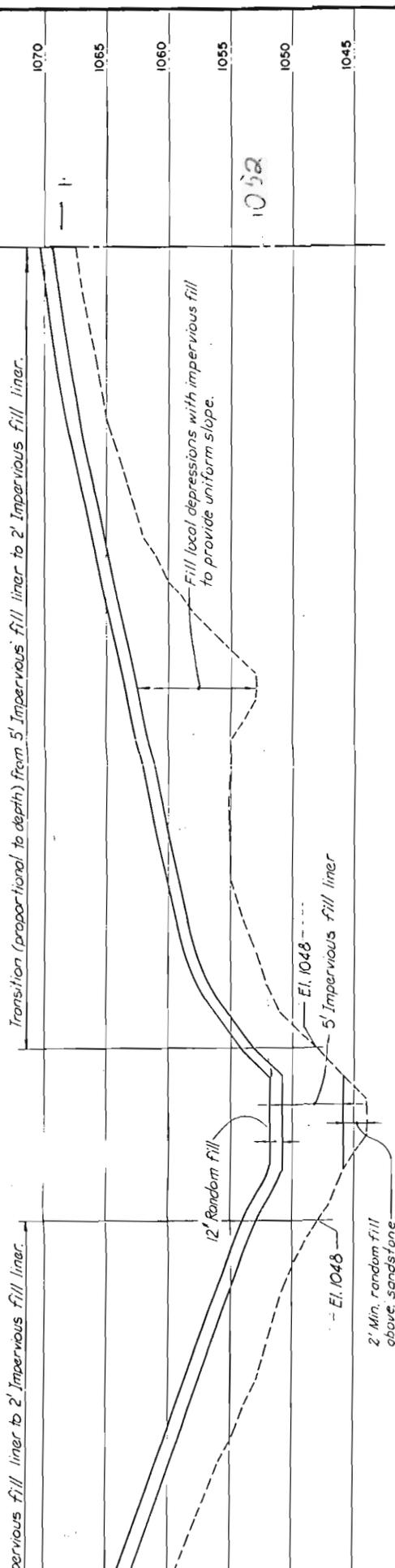
DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO 1/2 THE SIZE OF THE ORIGINAL SCALE.

THIS PLAN ACCOMPANIES CONTRACT NO. [Number] MODIFICATION NO. [Number]

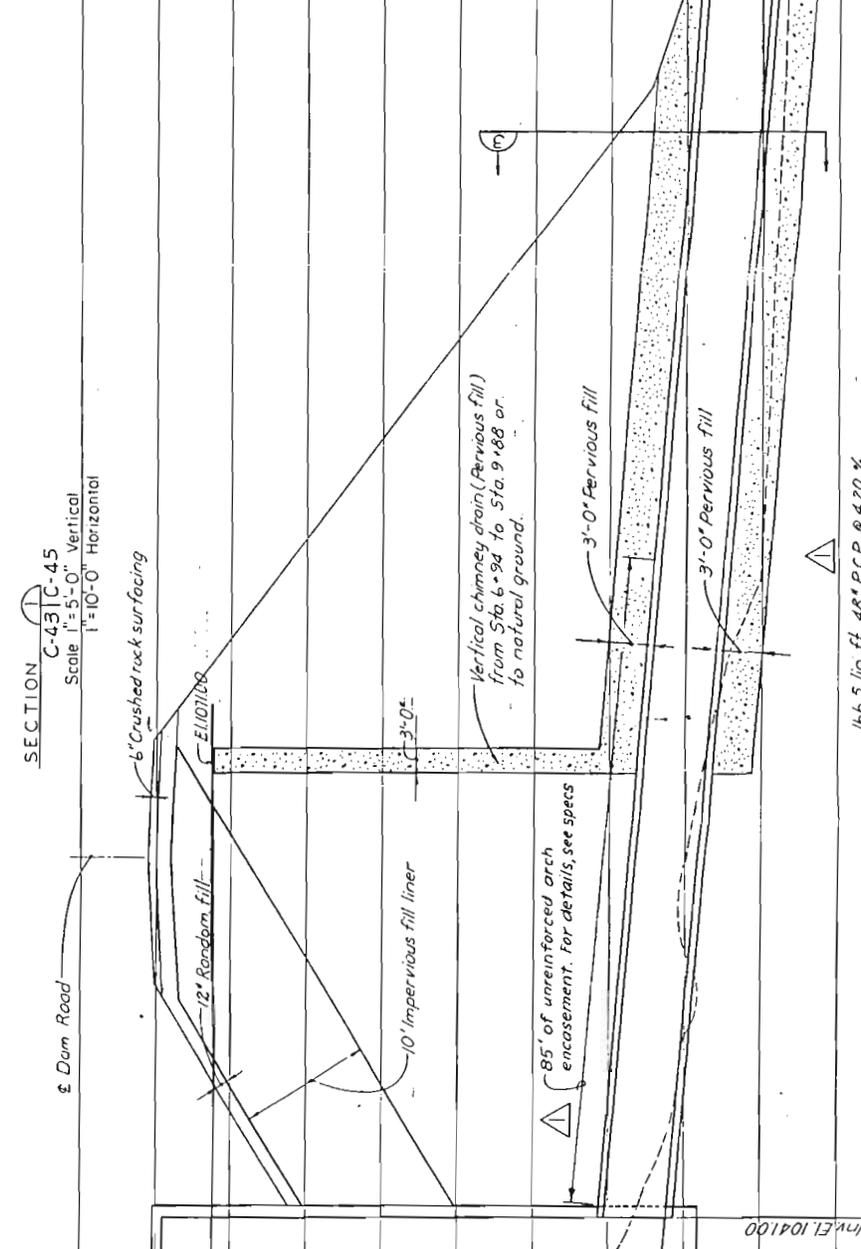
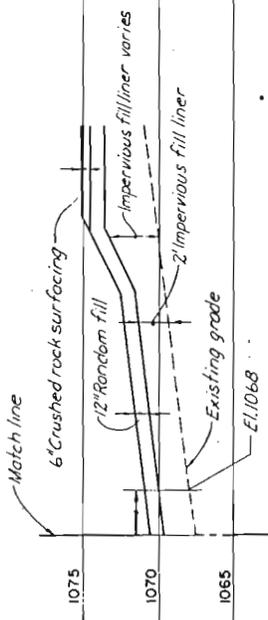




Impervious fill liner to 2' Impervious fill liner to 2' Impervious fill liner.



SECTION C-43 C-45  
Scale 1" = 5'-0" Vertical  
1" = 10'-0" Horizontal



SECTION C-43 C-45  
Scale 1" = 5'-0" Vertical  
1" = 10'-0" Horizontal

RECORD DRAWING  
NO. 1082

DATE	DESCRIPTION	REVISIONS	MADE	APPRO
5-12-76	REVISED IN ACCORDANCE WITH AX. NO. 0001			C.O.B.

DESIGNED BY: DR. S. J. LEONARD WOOD  
 U. S. ARMY ENGINEER DISTRICT  
 OMAHA, NEBRASKA  
 CORPS ENGINEERS  
 OMAHA, NEBRASKA



HORIZONTAL SCALE: 1 INCH = 10 FEET  
 VERTICAL SCALE: 1 INCH = 10 FEET

SECTION C-43 C-45  
Scale 1" = 5'-0" Vertical  
1" = 10'-0" Horizontal

4.20 List of raw materials, chemicals, additives, products, and by-products (Attach extra sheets as necessary)  
aluminum sulfate, liquid caustic soda, chlorine gas, potassium permanganate, sodium thiosulfate, polymer hyperion 1090

4.31 Attach following FORMS for wastewater to be land applied.  
 FORM C or F is required for all applicants. Use Form F for CAFOs.  
 FORM D is required for those industries listed in the Form D instructions or when required by the department.  
 Use actual testing results within last 12 months. For new operations use testing results from other similar operations or from published literature.

4.32 Are there any listed hazardous wastes in the material to be land applied:  YES  NO (If YES, attach testing results)

4.40 A. Are any Pollutants listed in 40 CFR 268.40 believed to be present in detectable concentrations:  YES  NO  
 B. Are any Pollutants listed in 10 CSR 20-7.031 believed to be present in detectable concentrations:  YES  NO  
 C. Are any Pollutants listed in EPA Process Design Manual for Land Treatment of Municipal Wastewater publication EPA-625/1-81-013, Table 4-5 and Table 4-16 believed present in detectable concentrations:  YES  NO  
 (Attach a copy of testing results for any pollutants that may be present in detectable concentrations.)

4.50 Environmental Assessment. Do any of the pollutants detected exceed the criteria for pollutant concentrations of limitations contained in the publications referenced in Section 4.40 of this form:  YES  NO  
 If YES, attach a copy of the Environmental Assessment as required in 10 CSR 20-8.020(3)(D).

**5.00 SOIL TESTING RESULTS:** Complete information for each pollutant listed and each land application site. Attach results of any other soil testing performed in the last 12 months. Soil sampling and testing should conform to University publication G9110, Sampling Your Soil for Testing; Soil Test Procedures for North Central Region (North Dakota Agricultural Experiment Bulletin 499-Revised); Methods of Soil Analysis, American Society of Agronomy, Inc.; Soil Testing and Plant Analysis, Soil Science Society of America, Inc.; EPA Methods; or other methods approved by the department. Attach extra sheets as necessary.

*Soil Test Report Enclosure C*

Total area sampled is \_\_\_ acres. Each composite sample covers \_\_\_ acres. Each composite consists of \_\_\_ subsamples.  
 Sample depth:  0-6 inches  0-12 inches  Other (describe) \_\_\_

Pollutant	Concentration (mg/kg or ppm)			Pounds/ Acre	No. Composite Samples	Sample Period
	Minimum	Maximum	Average			
Organic Nitrogen as N						
Ammonia Nitrogen as N						
Nitrate Nitrogen as N						
Phosphorus as P (Bray 1P)						
Exchangeable Sodium %						
Organic Matter (percent)						
Cation Exchange Capacity						
pH (standard units)						

Other pollutants present in the material to be land applied: (Attach extra sheets as necessary)


**6.00 LAND LIMITING CONSTITUENTS FOR LAND APPLICATION**

6.10 Metals of Concern for Land Application. Complete information for each pollutant listed. Analysis results must be for "TOTAL METALS". (Do NOT use TCLP, dissolved, total recoverable or other extraction methods. Include all test results for the last 5 years and a minimum of 4 separate samples.

Pollutant (total metals)	Concentration (mg/kg dry weight)			Design LBS/ Acre/Year	Type of Samples	Number Samples	Sample Location	Sample Period
	Minimum	Maximum	Average					
Aluminum								
Arsenic								
Beryllium								
Cadium								
Chromium								
Copper								
Fluoride								
Lead								
Manganese								
Mercury								
Molybdenum								
Nickel								
Selenium								
Silver								
Tin								
Zinc								

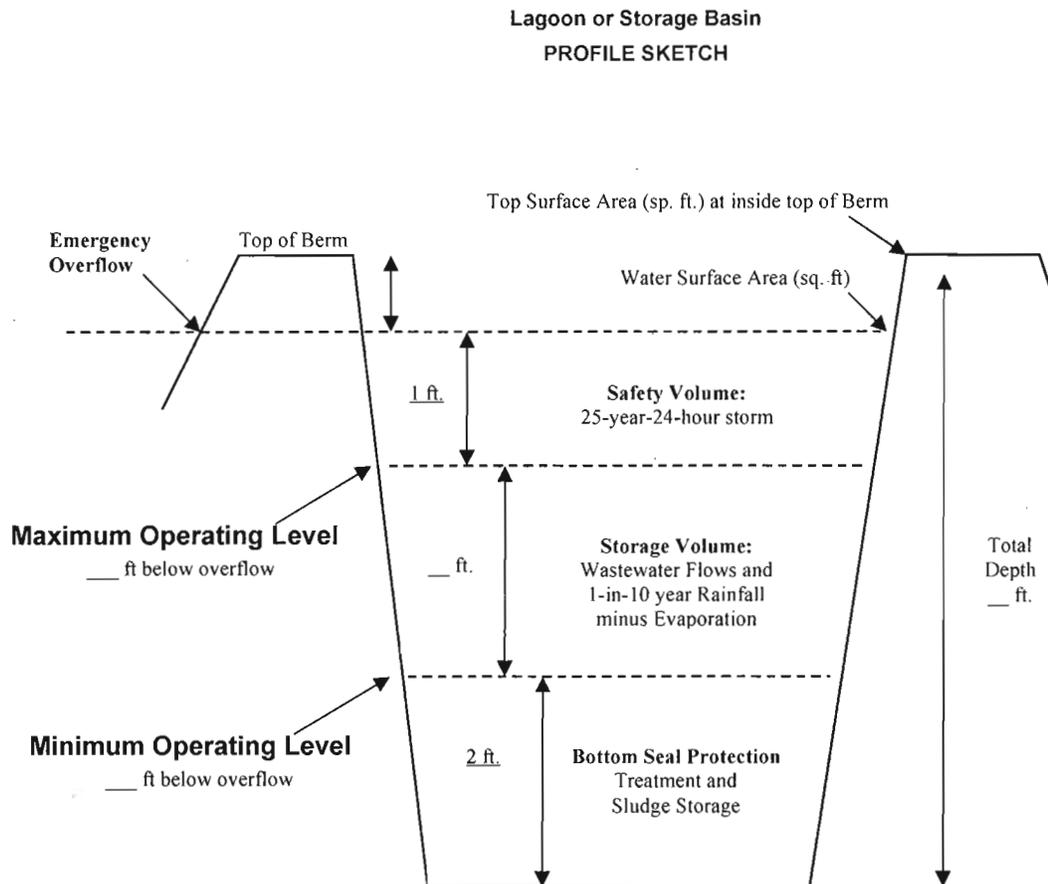
6.20 Major Pollutants of Concern for Land Application. Complete information for each pollutant listed. Include any other pollutants that are most limiting for determining land application rates. Attach extra sheets as necessary.

Organic Nitrogen as N								
Ammonia Nitrogen as N								
Nitrate Nitrogen as N								
Total Nitrogen as N								
Plant Available Nitrogen (PAN)								
Total Phosphorus as P								
Boron								
Chlorides								
Sodium								
COD								
TPH								
Total Suspended Solids								
Oil & Grease								
Sodium Absorption Ration (SAR)								
pH (standard units)								



## ATTACHMENT A

(To be included with Form I and Form R)



### DEFINITION OF TERMS (REFER TO THE PROFILE SKETCH ABOVE).

- a. Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
- b. Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
- c. Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
- d. Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.  
The minimum operating level may be greater than 2 feet when additional treatment volume is included.
- e. Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
- f. Total Depth is from top of berm to bottom of basin including freeboard.

**ENCLOSURE C**

# Soil Test Report

<http://www.soiltest.psu.missouri.edu/>

Serial no. **S23028-1** | Lab no. **C1014722**

County Pulaski | Region 7

Submitted 10/5/2010 | Processed 10/11/2010

Soil sample submitted by: Firm Number: Outlet:

FIELD INFORMATION			
Field ID 4	Sample no 1		
Acres 92*	Last Limed unknown	Irrigated No	
Last crop 17 CLOVER/CL-GRASS PAST		FSA Copy N	

This report is for:

7.9 Acres LB & B FRED  
P.O. BOX 439  
FORT LEONARD WOOD MO 65473

*Rec 10/12/10 27834*



SOIL TEST INFORMATION		RATING					
		Very Low	Low	Medium	High	Very High	Excess
pH <sub>s</sub> (salt pH)	6.6	*****					
Phosphorus (P)	32 lbs/A	*****					
Potassium (K)	79 lbs/A	*****					
Calcium (Ca)	2718 lbs/A	*****					
Magnesium (Mg)	256 lbs/A	*****					
Sulfur (SO <sub>4</sub> -S)	ppm						
Zinc (Zn)	ppm						
Manganese (Mn)	ppm						
Iron (Fe)	ppm						
Copper (Cu)	ppm						
Organic matter 2.1 %	Neutralizable acidity 0.5 meq/100g	Cation Exch. Capacity 8.5 meq/100g					
PH in water	Electrical Conductivity	Mmho/cm		Sodium (Na) lbs/A			
Nitrate (NO <sub>3</sub> -N) Topsoil ppm	Subsoil ppm	Sampling Depth	Top	Inches	Subsoil	Inches	
NUTRIENT REQUIREMENTS						LIMESTONE SUGGESTIONS	
Cropping options		Yield goal	Pounds per acre				
7 WARM SEASON GRASS EST		0	N 0	P <sub>2</sub> O <sub>5</sub> 0	K <sub>2</sub> O 50	Zn	S
						Effective Neutralizing Material (ENM)	0
						Effective magnesium (EMg)	0

**Comments**

---Some herbicide labels list restrictions based on soil pH in water. This sample has an estimated pH in water of 7.1. Use this estimated pH in water as a guide. If you wish to have soil pH in water analyzed, contact your dealer or Extension specialist listed below.

---If no P2O5 or no K2O is recommended retest annually to determine when maintenance fertilizer should be applied.

Regional Agronomy Specialist Ted Fry  
White-Farmer, Yellow-FSA, Blue-Firm, Pink-Extension

Phone 573-369-2394

MP 189 Revised 1/96

University of Missouri, Lincoln University, U.S. Department of Agriculture & Local University Extension Councils Cooperating  
Equal opportunity institutions

Signature \_\_\_\_\_  
Columbia