This document provides pertinent information concerning the reissuance of the VPDES Permit listed below This permit is being processed as a major, industrial permit The discharge results from the operation of a 0 2 MGD wastewater treatment plant and a 0 07 MGD reverse osmosis potable water treatment plant This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective 6 January 2011) and updating permit language as appropriate The effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of 9VAC25-260 et seq

1	Facility Name and Mailing Address	Coffeewood Correctional Center P O Box 500 Mitchells, VA 22729	SIC Code	4952 Wastewater Treatment Plant 4941 Water Treatment Plant
	Facility Location	12352 Coffeewood Drive Mitchells, VA 22729	County	Culpeper
	Facility Contact Name	Robert Leake Water Systems Supervisor	Telephone Number	540-317-4336
	Facility Email Address	Robert Leake@vadoc virginia gov		
2	Permit No	VA0087718	Expiration Date	15 September 2013
	Other VPDES Permits	Not Applicable		
	Other Permits	PWSID 6047016 – Public Water Supply (VDH) Registration No 40822 – DEQ-NRO Air Permit ID No 3039110 – DEQ-NRO Tank Registration (1 UST/2 AST)		
	E2/E3/E4 Status	Not Applicable		
3	Owner Name	Virginia Department of Corrections		
	Owner Contact/Title	Timothy Newton Director, Environmental Services Unit	Telephone Number	804-674-3303 ext 1195
	Owner Email Address	Timothy Newton@vadoc virginia gov		
4	Application Complete Date	11 March 2013		
	Permit Drafted By	Douglas Frasier	Date Drafted	23 April 2013
	Draft Permit Reviewed By	Alison Thompson	Date Reviewed	7 May 2013
	WPM Review By	Bryant Thomas	Date Reviewed	14 May 2013
	Public Comment Period	Start Date 22 June 2013	End Date	22 July 2013
5	Receiving Waters Information	See **Attachment 1** for the Flow Frequency Determination		
	Receiving Stream Name	Cabin Branch	Stream Code	3-CAB
	Drainage Area at Outfall	3 49 square miles	River Mile	1 54
	Stream Basin	Rappahannock River	Subbasin	None
	Section	4	Stream Class	III
	Special Standards	None	Waterbody ID	VAN-E16R
	7Q10 Low Flow	0 0 MGD	7Q10 High Flow	0 0 MGD
	1Q10 Low Flow	0 0 MGD	1Q10 High Flow	0 0 MGD
	30Q10 Low Flow	0 0 MGD	30Q10 High Flow	0 0 MGD
	Harmonic Mean Flow	0 0 MGD	30Q5 Flow	0 0 MGD

6 Statutory or Regulatory Basis for Special Conditions and Effluent Limitations

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ___ EPA Guidelines
- ✓ Water Quality Standards
- ___ Other

7 **Licensed Operator Requirements** Class II

8 **Reliability Class** Class I

9 **Permit Characterization**

	Private	✓	Effluent Limited		Possible Interstate Effect
	Federal	✓	Water Quality Limited		Compliance Schedule Required
✓	State	✓	Toxics Monitoring Program Required		Interim Limits in Permit
	POTW		Pretreatment Program Required	✓	Interim Limits in Other Document
✓	TMDL				See Section 26 / **Attachment 14**

10 **Wastewater Sources and Treatment Description**

Wastewater Treatment Plant

The Coffeewood Correctional Center STP is a 0 2 MGD Sequential Batch Reactor (SBR) treatment plant serving approximately 1,800 inmates and a population of about 100 from the Mitchells area

Influent from the correctional center and residential homes flow via gravity to the treatment plant Sewage travels through the preliminary treatment consisting of a mechanical bar rake and grit removal After screening, wastewater is pumped to one of two sequencing batch reactor (SBR) units Within the SBR unit, wastewater is mixed with sludge, aerated, settled and decanted for a pre-determined cycle of time Effluent leaving the SBR unit flows to the filter feed well then to the sand filters Disinfection is accomplished via UV units The effluent is reaerated prior to final discharge

Water Treatment Plant

The discharge from Outfall 002 results from the operation of a reverse osmosis potable water treatment system Groundwater is filtered through a permeable membrane and results in approximately 70,000 gallons per day of reject water, which is discharged from the system without additional treatment Chlorination of the potable water occurs after treatment There is no potential for chlorine to be found in the reject stream that is discharged

This discharge has been unable to meet chronic toxicity limits, consistently In 2002, the Department of Corrections entered an Executive Compliance Agreement (Amendment), allowing interim limits until such time the County of Culpeper could provide potable water to the facility An agreement has been signed at the time of this Fact Sheet, however, no completion date has been set Once the connection is complete, this plant will be taken offline, thus, discharge eliminated

See **Attachment 2** for the NPDES Permit Rating Worksheet

See **Attachment 3** for a facility schematic/diagram

TABLE 1
OUTFALL DESCRIPTION

Number	Discharge Sources	Treatment	Design/Max Flow	Latitude / Longitude
001	Domestic Wastewater	See Section 10 above	0 2 MGD	38° 21′ 53″ / 78° 01′ 36″
002	Industrial Wastewater	See Section 10 above	0 07 MGD	38° 21′ 53″ / 78° 01′ 36″
See **Attachment 4** for the Rapidan topographic map				

11 **Sludge Treatment and Disposal Methods**

Sludge is treated through aerobic digestion, dewatered using a plate filter press and land filled at the Shoossmith Brothers Sanitary Landfill in Chester, Virginia according to the permit application The facility generates approximately 50 dry metric tons of sludge per year

12 Discharges Located Within Waterbody VAN-E19R

TABLE 2 PERMITTED DISCHARGES			
Permit Number	Facility Name	Type	Receiving Stream
VA0092339	Rapidan Mill WWTP (not built)	Municipal Discharge Individual Permit	Rapidan River
VAG406459	Mian Residence	Small Municipal ≤ 1,000 gpd General Permit	Lick Run, UT
VAG840091	Vulcan Construction Materials – West Lake	Non Metallic Mineral Mining General Permit	Horsepen Run, UT
VAG250127	Saint Patrick's Church	Cooling Water General Permit	La Rogue Run

13 Material Storage

TABLE 3 MATERIAL STORAGE		
Materials Description	Maximum Amount Stored	Spill/Stormwater Prevention Measures
VITEC 3000 Antiscalent (polymer)	110 gallons	All chemicals are stored inside the water treatment plant except the hydrated lime which is stored in a 10' x 10' outbuilding
Sodium sulfite	100 pounds	
Calcium hypochlorite	500 pounds	
Ferric chloride	15 gallons	
Muriatic acid	15 gallons	
Sodium hypochlorite	165 gallons	
AQUAFEED 1025 Antiscalent (polymer)	110 gallons	
Citric acid	200 pounds	
NALCO 9909 dry polymer	200 pounds	
Hydrated lime	2000 pounds	
Alum (powered)	250 pounds	

14 Site Inspection Performed by DEQ-NRO Compliance Staff on 12 September 2012
See **Attachment 5** for inspection summary

15 Receiving Stream Water Quality and Water Quality Standards

a Ambient Water Quality Data

This facility discharges to Cabin Branch, which flows into Cedar Run There is no monitoring data for the receiving stream The nearest downstream DEQ monitoring stations is Station 3-CED000 59, located on Cedar Run at the Route 522 bridge crossing Station 3-CED000 59 is located approximately 3 32 rivermiles downstream from Outfalls 001 and 002 The following is a summary for Station 3-CED000 59, as taken from the Draft* 2012 Integrated Assessment

Class III Section 4

DEQ ambient station 3-CED000 59 at Route 522 Citizen monitoring station 3CED-C2-SOS

The aquatic life and recreation uses are considered fully supporting Citizen monitoring notes a high probability of adverse conditions for biota resulting an observed effect for the aquatic life use The fish consumption use was not assessed

Note No data was submitted for the 2012 assessment period to assess the wildlife use Evaluation of the wildlife use from the previous assessment will be carried forward including overall category and assessment documentation According to Rule 8 of the 2012 Assessment Guidance Manual (11-2007), "fully supporting waters can only be carried forward as fully supporting for two additional reporting cycles with no new data " 2012 is the first assessment the wildlife use assessment is carried forward

The wildlife use information from the 2010 assessment is as follows
The wildlife use is considered fully supporting

*Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA The 2012 IR is currently awaiting final approval

b 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4 INFORMATION ON DOWNSTREAM 303(d) IMPAIRMENTS AND TMDLS						
Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA
*Impairment Information in the Draft 2012 Integrated Report**						
Cedar Run	Recreation	*E Coli*	1 6 miles	Yes – 2007	3 48E+11cfu/year	Max Design Flow of Outfall 001 (0 2 MGD) and *E coli* criterion (126 cfu/100mL)

**Virginia s Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA The 2012 IR is currently awaiting final approval*

The full planning statement is found in **Attachment 6**

c Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections The receiving stream, Cabin Branch, is located within Section 4 of the Rappahannock River Basin and classified as Class III water

At all times, Class III waters must achieve a dissolved oxygen (D O) of 4 0 mg/L or greater, a daily average D O of 5 0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6 0-9 0 standard units (S U)

Attachment 7a and **Attachment 7b** detail other water quality criteria applicable to the receiving stream for Outfall 001 and Outfall 002, respectively

Ammonia

The fresh water, aquatic life Water Quality Criteria for ammonia is dependent on the instream pH and temperature The critical 30Q10 flow of the receiving stream is 0 0 MGD In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality standard The 90th percentile pH values are used because they best represent the critical conditions of the receiving stream Since effluent temperature data was not readily available, a default temperature value of 25° C for summer and an assumed value of 15° C for winter were utilized

See **Attachment 8** for the derivation of the 90th percentile values of the effluent pH data from October 2008 to March 2013 and **Attachment 7a** and **Attachment 7b** for the subsequent Water Quality Criteria

Metals Criteria

The Water Quality Criteria for some metals are dependent on the receiving stream and/or the effluent hardness values (expressed as mg/L calcium carbonate) However, there is no ambient data available since the critical 7Q10 flow of the receiving stream is zero The only hardness data for the facility is for Outfall 002, which is artificially elevated (refer to **Attachment 12**) due to the treatment process and is staff's opinion that it should not be utilized to calculate metal criteria Previous reissuances utilized hardness data collected at the monitoring station located at the Route 522 bridge on Cedar Run (see Section 15 a) It is staff's best professional judgement that the average value of 88 4 mg/L $CaCO_3$ used in the last reissuance is still indicative of current conditions and suitable for this criteria determination

Bacteria Criteria

The Virginia Water Quality Standards at 9VAC25-260-170 A state that the following criteria shall apply to protect primary recreational uses in surface waters

E coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following

	Geometric Mean[1]
Freshwater *E coli* (N/100 mL)	126

[1]For a minimum of four weekly samples taken during any calendar month

d Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia The receiving stream, Cabin Branch, is located within Section 4 of the Rappahannock River Basin This section has not been designated with a special standard

e Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on 12 March 2013 for records to determine if there are threatened or endangered species in the vicinity of the discharge The following threatened species were identified within a 2 mile radius of the discharge upland sandpiper (song bird), loggerhead shrike (song bird), green floater (mussel), migrant loggerhead shrike (song bird) The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened species found near the discharge

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use It is staff's best professional judgment that the proposed limits are protective of this use

16 Antidegradation (9VAC25-260-30)

All state surface waters are provided one of three levels of antidegradation protection For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained Tier 2 water bodies have water quality that is better than the water quality standards Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment The antidegradation policy prohibits new or expanded discharges into exceptional waters

The receiving stream has been classified as Tier 1 based on the determination that the critical 7Q10, 30Q10 and 1Q10 flows for the stream are zero and at times the stream flow is comprised of only effluent It is staff's best professional judgment that such streams are Tier 1 Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria These wasteload allocations will provide for the protection and maintenance of all existing uses

17 Effluent Screening, Wasteload Allocation and Effluent Limitation Development

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent Then, the Wasteload Allocations (WLAs) are calculated In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLAs are equal to the WQS The WLA values are then compared with available effluent data to determine the need for effluent limitations Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation Effluent limitations are based on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data

a Effluent Screening

Effluent data obtained from the permit application and October 2008 – March 2013 Discharge Monitoring Reports has been reviewed and determined to be suitable for evaluation

Please see **Attachment 8** for a summary of effluent data

b Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria The basic calculation for establishing a WLA is the steady state complete mix equation

$$WLA = \frac{C_o[Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria 7Q10 for chronic aquatic life criteria harmonic mean for carcinogen human health criteria 30Q10 for ammonia criteria and 30Q5 for non carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream

The water segment receiving the discharge via Outfall 001 and Outfall 002 is considered to have a 7Q10, 30Q10 and 1Q10 of 0 0 MGD As such, there is no mixing zone and the WLA is equal to the C_o

c Effluent Limitations and Monitoring – Toxic Pollutants

9VAC25-31-220 D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria Those parameters with WLAs that are near effluent concentrations are evaluated for limits

The VPDES Permit Regulation at 9VAC25-31-230 D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges

Outfall 001

1) Ammonia as N/TKN

Staff reevaluated pH and temperature and has concluded it is not significantly different than what was used previously to derive ammonia criteria Current DEQ guidance recommends utilizing a sole data point of 9 0 mg/L to ensure the evaluation adequately addresses the potential for ammonia to be present in discharges containing domestic sewage

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3) Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life while the ionized ammonia has been found to have little or no toxic effect Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values, thus, increasing potential toxicity and the basis for the above calculated ammonia limits

It is generally accepted that Total Kjeldahl Nitrogen (TKN) consists of approximately 60% ammonia in raw wastewater As the waste stream is treated, the ammonia component of TKN is converted to Nitrate (NO_3) and Nitrite (NO_2) It is estimated that a facility achieving a TKN limit of 3 0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity

It is staff's best professional judgement that a TKN monthly average limit of 3 0 mg/L is still protective given the aforementioned and will be carried forward in this reissuance The weekly average limit will be 4 5 mg/L based on a multiplier of 1 5 times the monthly average

2) Total Residual Chlorine

Chlorine is not utilized for disinfection, therefore, total residual chlorine limitations are not warranted

3) Metals/Organics

Limit determinations were completed for Copper and Zinc See **Attachment 9** for the limit derivations Data indicated that the current copper limit would remain at 12 µg/L while there was no limit required for zinc However, due to antibacksliding provisions, the current zinc limit of 79 µg/L will be carried forward with this reissuance

d <u>Effluent Limitations and Monitoring – Conventional and Non-Conventional Pollutants</u>

Outfall 001

No changes to dissolved oxygen (D O), carbonaceous-biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), total kjeldahl nitrogen (TKN) and pH limitations are proposed

Dissolved oxygen, $cBOD_5$ and TKN limitations are based on the stream modeling conducted in September 1992 (**Attachment 10**) and are set to meet the water quality criteria for dissolved oxygen in the receiving stream

It is staff's practice to equate the total suspended solids limits with the $cBOD_5$ limits since the two pollutants are closely related in terms of treatment of domestic sewage

pH limitations are set at the water quality criteria

E coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170

Outfall 002

No changes to dissolved oxygen (D O) and pH limitations are proposed

The total dissolved solids (TDS) limitation was based on data and demonstrations provided by the Department of Corrections It was shown that precipitation of the dissolved solids is unlikely and that the elevated levels of dissolved solids would not affect the palatability of the receiving stream for downstream livestock There are no Water Quality Standards for aquatic life See **Attachment 11** for 1974 National Academy of Sciences publication excerpt regarding livestock use

pH limitations are set at the Water Quality Criteria

e <u>Effluent Limitations and Monitoring Summary</u>

The effluent limitations are presented in the following table Limits were established for $cBOD_5$, total suspended solids, total kjeldahl nitrogen, pH, dissolved oxygen, total recoverable zinc, total recoverable copper, total dissolved solids, whole effluent toxicity and *E coli*

The mass loading (kg/d) for BOD_5 and TSS monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then by a conversion factor of 3 785
Sample types are in accordance with the recommendations in the VPDES Permit Manual

The permittee requested a reduction in the monitoring frequency for the parameters total suspended solids and $cBOD_5$ upon submission of the reissuance application Staff evaluated the previous three years of effluent data, per agency guidance, and found no exceedances of the limitations Therefore, a reduction in monitoring frequency was included with this reissuance for this permit term

See Section 24 for further details

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD/cBOD and TSS (or 65% for equivalent to secondary) The limits at Outfall 001 in this permit are water quality-based effluent limits and result in greater than 85% removal

18 Antibacksliding

All limits in this permit are at least as stringent as those previously established Backsliding does not apply to this reissuance

19a Effluent Limitations/Monitoring Requirements for Outfall 001

Design flow is 0 2 MGD
Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6 0 S U	9 0 S U	1/D	Grab
$cBOD_5$	2,4	10 mg/L 7 6 kg/day	15 mg/L 11 kg/day	NA	NA	1/W [b]	8H C
Total Suspended Solids (TSS)	2	10 mg/L 7 6 kg/day	15 mg/L 11 kg/day	NA	NA	1/W [b]	8H-C
Dissolved Oxygen (DO)	3 4	NA	NA	6 0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	3,4	3 0 mg/L 2 3 kg/day	4 5 mg/L 3 4 kg/day	NA	NA	1/W [b]	8H C
E coli (Geometric Mean) [a]	3 5	126 n/100mL	NA	NA	NA	1/W [b]	Grab
Copper Total Recoverable	3	12 µg/L	12 µg/L	NA	NA	1/M	Grab
Zinc Total Recoverable	3	79 µg/L	79 µg/L	NA	NA	1/M	Grab

The basis for the limitations codes are

1 Federal Effluent Requirements
2 Best Professional Judgement
3 Water Quality Standards
4 Stream Model – **Attachment 10**
5 Rapidan River Basin TMDL

MGD = Million gallons per day
NA = Not applicable
NL = No limit monitor and report
S U = Standard units
TIRE = Totalizing indicating and recording equipment

1/D = Once every day
1/W = Once every week
1/M = Once every month

8H C = A flow proportional composite sample collected manually or automatically and discretely or continuously for the entire discharge of the monitored 8 hour period Where discrete sampling is employed the permittee shall collect a minimum of eight (8) aliquots for compositing Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge

Grab = An individual sample collected over a period of time not to exceed 15 minutes

[a] Samples shall be collected between the hours of 10 A M and 4 P M

[b] See Section 24 of this Fact Sheet

19b Effluent Limitations/Monitoring Requirements for Outfall 002

Design flow is 0 07 MGD
Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/M	Estimate
pH	3	NA	NA	6 0 S U	9 0 S U	1/M	Grab
Total Dissolved Solids (TDS)	2 4	NA	NA	NA	5000 mg/L 1300 kg/day	1/M	5G/8H C
Chronic Toxicity – *C dubia*		NA	NA	NA	1 44 TU_c	1/Y	5G/8H C

The basis for the limitations codes are

1 Federal Effluent Requirements
2 Best Professional Judgement
3 Water Quality Standards
4 1974 National Academy of Science – **Attachment 11**

MGD = Million gallons per day
NA = Not applicable
NL = No limit monitor and report
S U = Standard units

1/M = Once every month
1/Y = Once every calendar year

5G/8H C = A composite sample consisting of a minimum of five (5) grab samples collected at hourly intervals until the discharge ceases or if the discharge is less than eight (8) hours in duration a minimum of five (5) grab samples collected at evenly spaced intervals during the duration of the discharge

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge

Grab = An individual sample collected over a period of time not to exceed 15 minutes

20 Other Permit Requirements

a Part I B of the permit contains quantification levels and compliance reporting instructions

9VAC25-31-190 L 4 c requires an arithmetic mean for measurement averaging and 9VAC25-31-220 D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation Required averaging methodologies are also specified

b Part I C of the permit details the requirements for Whole Effluent Toxicity Program

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220 I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act A WET Program is imposed for facilities determined by the Board based on effluent variability, compliance history, IWC and receiving stream characteristics This facility was given a WET limit in 1999 based on toxicity findings at Outfall 002 Based on the variability of this effluent, it is staff's best professional judgement that the WET requirements remain until such time the discharge ceases (See Section 10)

See **Attachment 12** for a summary of test results

21 Other Special Conditions

a 95% Capacity Reopener The VPDES Permit Regulation at 9VAC25-31-200 B 4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period This facility is a POTW

b Indirect Dischargers Required by VPDES Permit Regulation, 9VAC25-31-200 B 1 and B 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works

c O&M Manual Requirement Required by Code of Virginia §62 1-44 19, Sewage Collection and Treatment Regulations, 9VAC25-790, VPDES Permit Regulation, 9VAC25-31-190 E The permittee shall maintain a current Operations and Maintenance (O&M) Manual The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes Non-compliance with the O&M Manual shall be deemed a violation of the permit

d CTC, CTO Requirement The Code of Virginia § 62 1-44 19, Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works

e Licensed Operator Requirement The Code of Virginia at §54 1-2300 et seq and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq) requires licensure of operators This facility requires a Class II operator

f Reliability Class The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service The facility is required to meet a reliability Class of I

g Sludge Reopener The VPDES Permit Regulation at 9VAC25-31-220 C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA The facility includes a sewage treatment works

h Sludge Use and Disposal The VPDES Permit Regulation at 9VAC25-31-100 P, 220 B 2 , and 420 through 720 and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal The facility includes a treatment works treating domestic sewage

i Materials Handling/Storage 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit Code of Virginia §62 1-44 16 and §62 1-44 17 authorize the Board to regulate the discharge of industrial waste or other waste

j Notification Levels The permittee shall notify the Department as soon as they know or have reason to believe

1) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels

a) One hundred micrograms per liter,

b) Two hundred micrograms per liter for acrolein and acrylonitrile, five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol, and one milligram per liter for antimony,

c) Five times the maximum concentration value reported for that pollutant in the permit application, or

d) The level established by the Board

2) That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels

a) Five hundred micrograms per liter,

b) One milligram per liter for antimony,

c) Ten times the maximum concentration value reported for that pollutant in the permit application, or

d) The level established by the Board

k Effluent Monitoring Frequencies If the facility permitted herein exceeds the limitation for any of the following parameters TSS, TKN, cBOD and *E coli*, the effluent monitoring frequency of 3D/W shall become effective for that specific parameter upon written notice from DEQ for a minimum of 30 days Upon demonstration of compliance for a given month, the permittee may request that the reduced monitoring be reinstated

l TMDL Reopener This special condition allows the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream

22 Permit Section Part II Part II of the permit contains standard conditions that appear in all VPDES Permits In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention

23 Changes to the Permit from the Previously Issued Permit

a Special Conditions None

b Monitoring and Effluent Limitations None

24 Variances/Alternate Limits or Conditions

A review of DMR data indicated that no effluent violations have occurred at this facility during the last three (3) years and the ratio of actual performance regarding TSS, $cBOD_5$ and *E coli* was < 25% of the permit limitation (i e reported effluent data, on average, was less than one-fourth the allowable pollutant concentration) Current agency guidance allows for monitoring reductions for reissuances based on facilities demonstrating exemplary operations and consistently achieving permit requirements It is staff's best professional judgement that reduced monitoring frequencies are appropriate for this facility

The reduced monitoring frequency for total kjeldahl nitrogen that was requested during the last reissuance will be carried forward with this reissuance There were no exceedances noted during the last permit term

25 Public Notice Information

First Public Notice Date 21 June 2013 Second Public Notice Date 28 June 2013

Public Notice Information is required by 9VAC25-31-280 B All pertinent information is on file and may be inspected, and copied by contacting the DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No (703) 583-3873, Douglas Frasier@deq virginia gov See **Attachment 13** for a copy of the public notice document

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments Only those comments received within this period will be considered The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit Requests for public hearings shall state 1) the reason why a hearing is requested, 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit, and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions Following the comment period, the Board will make a determination regarding the proposed permit action This determination will become effective, unless the DEQ grants a public hearing Due notice of any public hearing will be given The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment

26 Additional Comments

Previous Board Action(s)	On 19 June 2002, the DEQ and the Department of Corrections entered an Executive Compliance Agreement (Amendment) This agreement provided a Schedule of Compliance for the facility in order to achieve permitted limits for Outfall 001 and Outfall 002 The permittee was granted interim limits for Copper and Zinc for Outfall 001 and a WET limit for Outfall 002 until such time compliance is achieved As of the date of this Fact Sheet, an agreement between the DOC and the County of Culpeper was being drafted in order to provide public water to the correctional center, thus, eliminating the discharge from Outfall 002 See **Attachment 14** for a copy of the Executive Compliance Agreement
Staff Comments	No comments were received
Public Comment	No comments were received during the public notice
EPA Checklist	The checklist can be found in **Attachment 15**

Fact Sheet Attachments

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Coffeewood Correctional Center
VA0087718
2013 Reissuance

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Attachment 2	NPDES Permit Rating Worksheet
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Attachment 4	Topographic Map
Attachment 5	Site Inspection Report
Attachment 6	Planning Statement
Attachment 7a / 7b	Water Quality Criteria / Wasteload Allocation Analysis for Outfall 001 and Outfall 002
Attachment 8	October 2008 – March 2013 Effluent Data for Outfall 001 and Outfall 002
Attachment 9	Copper and Zinc Limitation Derivations
Attachment 10	September 1992 Stream Modeling Results
Attachment 11	1974 National Academy of Sciences Publication
Attachment 12	Whole Effluent Toxicity Test Summary
Attachment 13	Public Notice
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MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Coffeewood Correctional Center - #VA0087718

TO: James Olson, NRO

FROM: Paul E Herman, P.E., WQAP

DATE: December 12, 1997

COPIES: Ron Gregory, Charles Martin, File

This memo supercedes Ed Morrow's memo to Jennie Dollard dated August 5, 1992 concerning the subject facility.

The Coffeewood Correctional Center discharges to the Cabin Branch near Culpeper, VA Stream flow frequencies are required at this site by the permit writer for the purpose of calculating effluent limitations for the VPDES permit.

The USGS conducted several flow measurements on the Cedar Run from 1951 to 1954 and from 1979 to 1981. The measurements were made at the Route 522 bridge near Culpeper, VA. The low flow/base flow measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the Mountain Run near Culpeper, VA #01665000. The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph.

The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the discharge point are presented below.

Mountain Run near Culpeper, VA (#01665000):

Drainage Area = 15 9 mi^2

1Q10 = 0 45 cfs	High Flow 1Q10 = 2 8 cfs
7Q10 = 0 60 cfs	High Flow 7Q10 = 3.7 cfs
30Q5 = 1 5 cfs	HM = 5 4 cfs

Cedar Run at Rt 522 near Culpeper, VA (#01667650):

Drainage Area = 28 07 mi^2

1Q10 = 0.0 cfs	High Flow 1Q10 = 0.12 cfs
7Q10 = 0 0 cfs	High Flow 7Q10 = 0.24 cfs

Attachment 1

30Q5 = 0.0 cfs HM = 0.0 cfs

Cabin Branch at discharge point:

Drainage Area = 3.49 mi^2

1Q10 = 0.0 cfs	High Flow 1Q10 = 0.015 cfs
7Q10 = 0.0 cfs	High Flow 7Q10 = 0 030 cfs
30Q5 = 0.0 cfs	HM = 0.0 cfs

The high flow months are December through April.

This analysis assumes there are no significant discharges, withdrawals or springs influencing the flow in the Cabin Branch upstream of the discharge point

If there are any questions concerning this analysis, please let me know.

Conversion of CFS to MGD using the conversion factor 0 6463

High Flow 1Q10 = 0 015 cfs x 0 6463 = 0 0096945 MGD
High Flow 7Q10 = 0 030 cfs x 0 6463 = 0 019389 MGD

NPDES PERMIT RATING WORK SHEET

- [X] Regular Addition
- [ ] Discretionary Addition
- [ ] Score change but no status Change
- [ ] Deletion

VPDES NO VA0087718

Facility Name Coffeewood Correctional Center
City / County Mitchells / Culpeper County
Receiving Water Cabin Branch
Waterbody ID VAN-E19R

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1 Power output 500 MW or greater (not using a cooling pond/lake)

2 A nuclear power Plant

3 Cooling water discharge greater than 25% of the receiving stream s 7Q10 flow rater

[ ] Yes score is 600 (stop here) [X] NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100 000?

[ ] YES score is 700 (stop here)
[X] NO (continue)

FACTOR 1 Toxic Pollutant Potential

PCS SIC Code _____ Primary Sic Code 4941 Other Sic Codes _____ _____ _____

Industrial Subcategory Code 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[ ] No process waste streams	0	0	[ ] 3	3	15	[X] 7	7	35
[ ] 1	1	5	[ ] 4	4	20	[ ] 8	8	40
[ ] 2	2	10	[ ] 5	5	25	[ ] 9	9	45
			[ ] 6	6	30	[ ] 10	10	50

Code Number Checked 7
Total Points Factor 1 **35**

FACTOR 2 Flow/Stream Flow Volume (Complete either Section A or Section B check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)			Code	Points
Type I	Flow < 5 MGD	[ ]	11	0
	Flow 5 to 10 MGD	[ ]	12	10
	Flow > 10 to 50 MGD	[ ]	13	20
	Flow > 50 MGD	[ ]	14	30
Type II	Flow < 1 MGD	[X]	21	10
	Flow 1 to 5 MGD	[ ]	22	20
	Flow > 5 to 10 MGD	[ ]	23	30
	Flow > 10 MGD	[ ]	24	50
Type III	Flow < 1 MGD	[ ]	31	0
	Flow 1 to 5 MGD	[ ]	32	10
	Flow > 5 to 10 MGD	[ ]	33	20
	Flow > 10 MGD	[ ]	34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III	< 10 %	[ ]	41	0
	10 % to < 50 %	[ ]	42	10
	> 50%	[ ]	43	20
Type II	< 10 %	[ ]	51	0
	10 % to < 50 %	[ ]	52	20
	> 50 %	[ ]	53	30

Code Checked from Section A or B 21
Total Points Factor 2 **10**

NPDES PERMIT RATING WORK SHEET

FACTOR 3 Conventional Pollutants

(only when limited by the permit)

A Oxygen Demanding Pollutants (check one) ☐ BOD ☐ COD ☐ Other _____

Permit Limits (check one)

	Code	Points
☐ < 100 lbs/day	1	0
☐ 100 to 1000 lbs/day	2	5
☐ > 1000 to 3000 lbs/day	3	15
☐ > 3000 lbs/day	4	20

Code Number Checked: NA

Points Scored: 0

B Total Suspended Solids (TSS)

Permit Limits (check one)

	Code	Points
☐ < 100 lbs/day	1	0
☐ 100 to 1000 lbs/day	2	5
☐ > 1000 to 5000 lbs/day	3	15
☐ > 5000 lbs/day	4	20

Code Number Checked: NA

Points Scored: 0

C Nitrogen Pollutants (check one) ☐ Ammonia ☐ Other _____

Permit Limits (check one)

Nitrogen Equivalent	Code	Points
☐ < 300 lbs/day	1	0
☐ 300 to 1000 lbs/day	2	5
☐ > 1000 to 3000 lbs/day	3	15
☐ > 3000 lbs/day	4	20

Code Number Checked: NA

Points Scored: 0

Total Points Factor 3: 0

FACTOR 4 Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration gallenes or other methods of conveyance that ultimately get water from the above reference supply

☒ YES (If yes check toxicity potential number below)

☐ NO (If no go to Factor 5)

Determine the *Human Health* potential from Appendix A Use the same SIC doe and subcategory reference as in Factor 1 (Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3	3	0	☒ 7	7	15
☐ 1	1	0	☐ 4	4	0	☐ 8	8	20
☐ 2	2	0	☐ 5	5	5	☐ 9	9	25
			☐ 6	6	10	☐ 10	10	30

Code Number Checked: 7

Total Points Factor 4: 15

NPDES PERMIT RATING WORK SHEET

FACTOR 5 Water Quality Factors

A *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-base federal effluent guidelines or technology-base state effluent guidelines) or has a wasteload allocation been assigned to the discharge?*

		Code	Points
[ ]	YES	1	10
[X]	NO	2	0

B *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
[X]	YES	1	0
[ ]	NO	2	5

C *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
[X]	YES	1	10
[ ]	NO	2	0

Code Number Checked	A	2		B	1		C	1		
Points Factor 5	A	0	+	B	0	+	C	10	=	**20**

FACTOR 6 Proximity to Near Coastal Waters

A Base Score Enter flow code here (from factor 2) 21

Check appropriate facility HPRI code (from PCS)

	HPRI#	Code	HPRI Score
[ ]	1	1	20
[ ]	2	2	0
[ ]	3	3	30
[X]	4	4	0
[ ]	5	5	20

Enter the multiplication factor that corresponds to the flow code 0 10

Flow Code	Multiplication Factor
11 31 or 41	0 00
12 32 or 42	0 05
13 33 or 43	0 10
14 or 34	0 15
21 or 51	0 10
22 or 52	0 30
23 or 53	0 60
24	1 00

HPRI code checked 4

Base Score (HPRI Score) 0 X (Multiplication Factor) 0 10 = 0

B Additional Points – NEP Program

For a facility that has an HPRI code of 3 does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
[ ]	1	10
[ ]	2	0

C Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5 does the facility discharge any of the pollutants of concern into one of the Great Lakes 31 area s of concern (see instructions)?

	Code	Points
[ ]	1	10
[ ]	2	0

Code Number Checked	A	4		B	NA		C	NA		
Points Factor 6	A	0	+	B	0	+	C	0	=	**0**

VA0087718

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	35
2	Flows / Streamflow Volume	10
3	Conventional Pollutants	0
4	Public Health Impacts	15
5	Water Quality Factors	20
6	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	80

S1 Is the total score equal to or grater than 80 [X] YES (Facility is a Major) [ ] NO

S2 If the answer to the above questions is no would you like this facility to be discretionary major?

[ ] NO

[ ] YES (Add 500 points to the above score and provide reason below

Reason _____

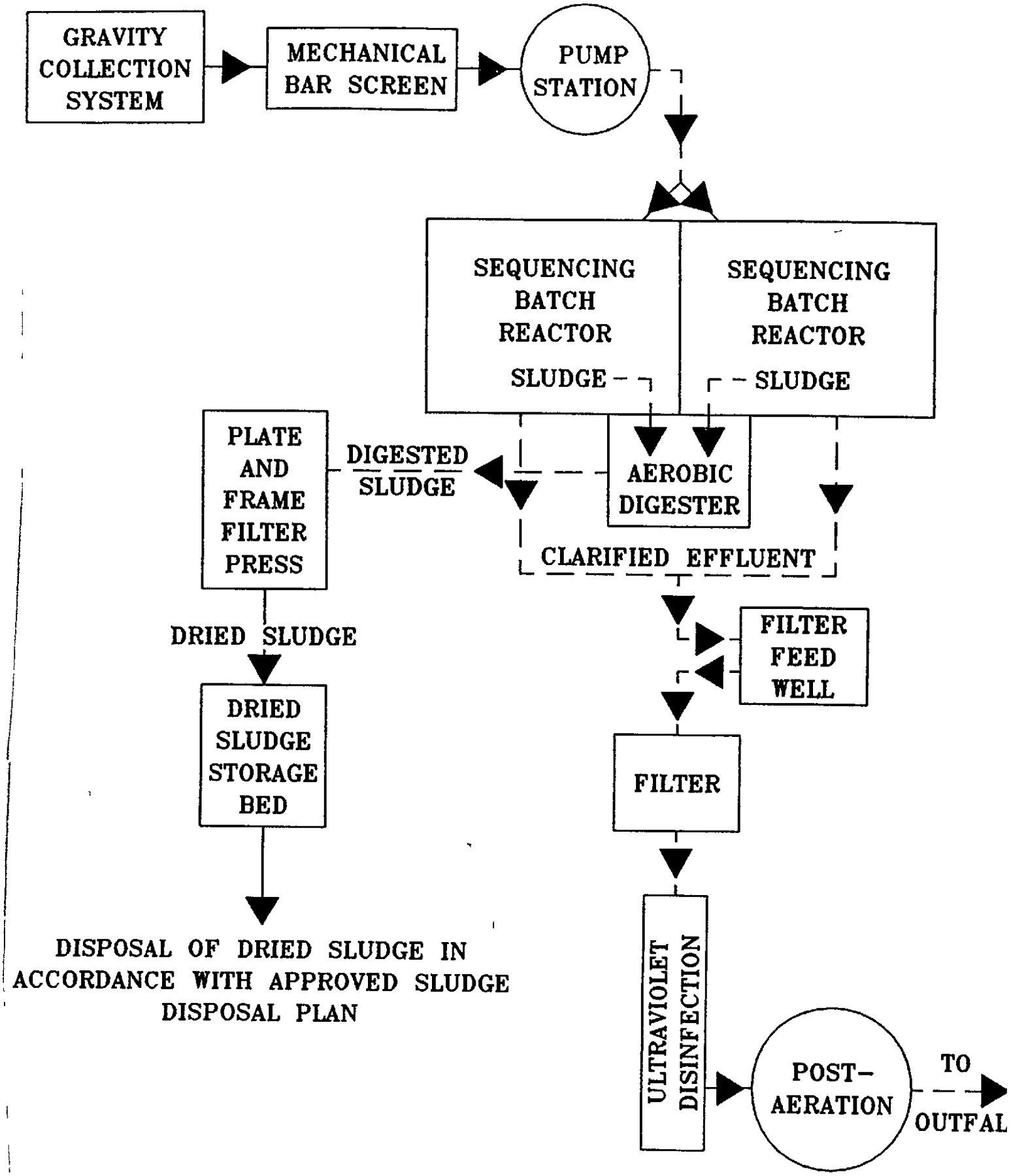
NEW SCORE 80

OLD SCORE 80

Permit Reviewer's Name Douglas Frasier

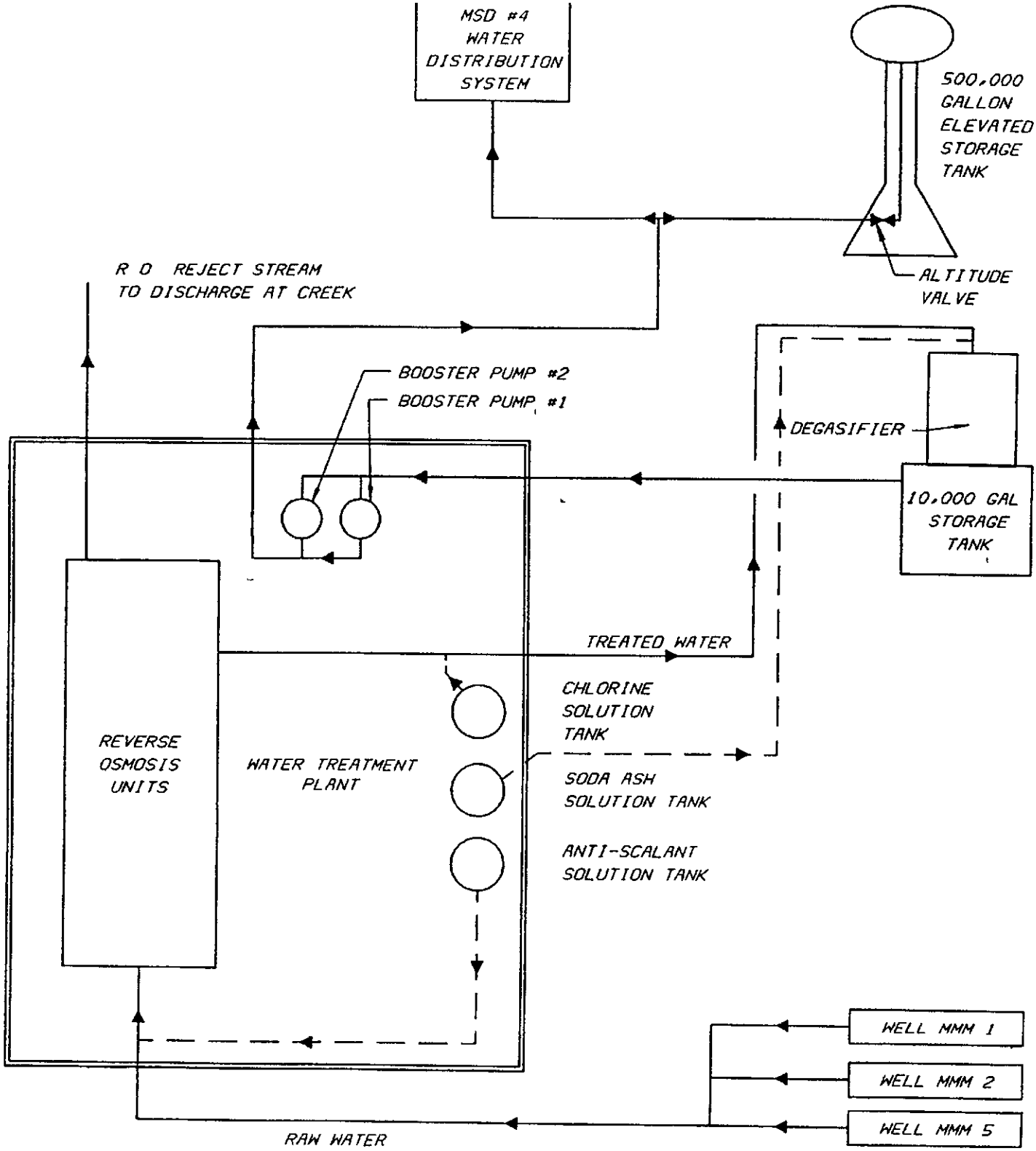
Phone Number 703 583 3873

Date 23 April 2013



WASTEWATER TREATMENT PLANT FLOW SCHEMATIC

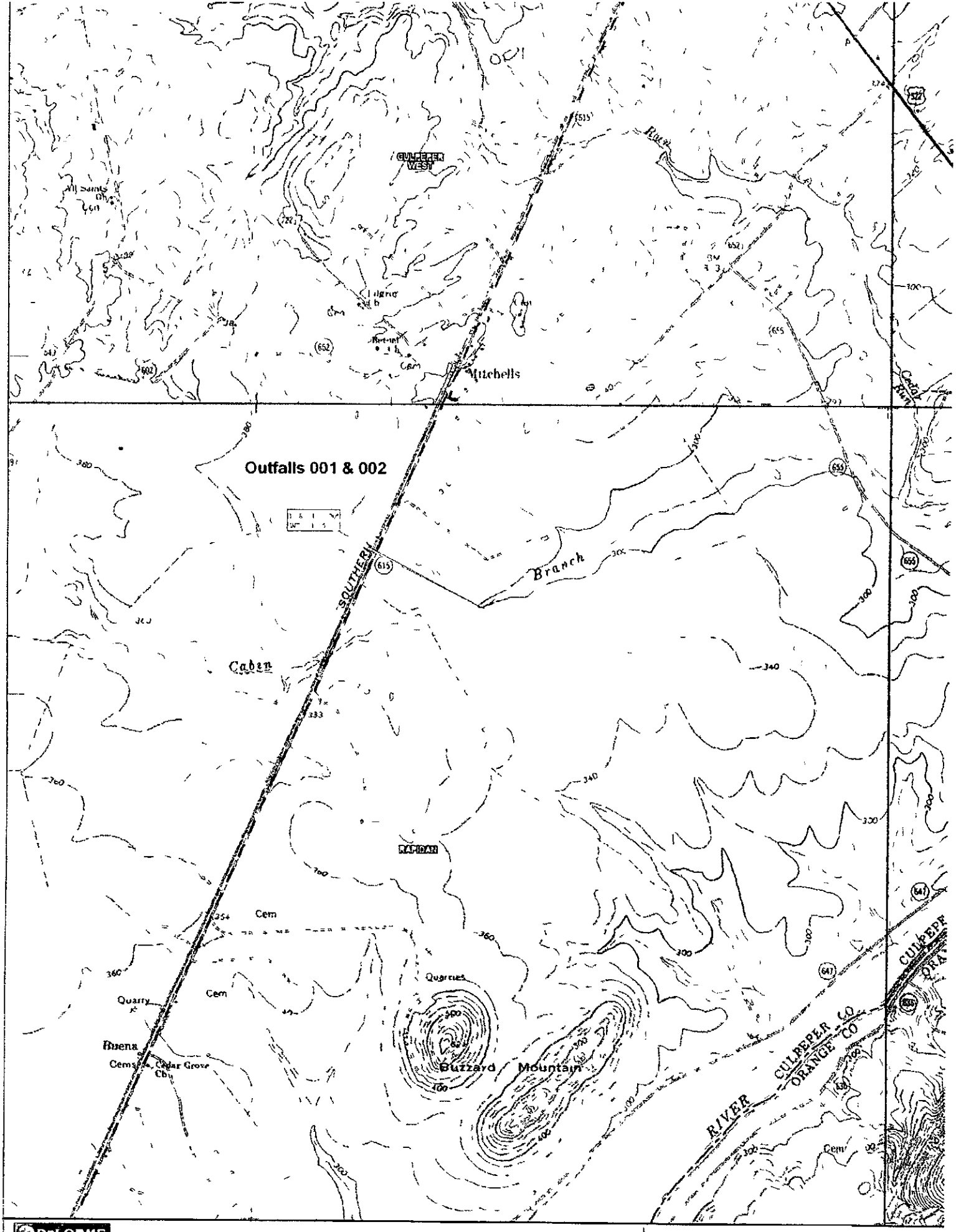
Attachment 3



MEDIUM SECURITY DORMITORY NO. 4
CULPEPER, VIRGINIA

WATER TREATMENT PLANT SCHEMATIC

II - 2



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Attachment 4

VPDES NO **VA0087718**

Problems identified at last inspection **09/20/07**	Corrected	Not Corrected
1 **None**	[ ]	[ ]
2	[ ]	[ ]
3	[ ]	[ ]
4	[ ]	[ ]
5	[ ]	[ ]
6	[ ]	[ ]
7	[ ]	[ ]
8	[ ]	[ ]
9	[ ]	[ ]
10	[ ]	[ ]

SUMMARY 9/12/12 INSPECTION

Comments

The facility is still trying to get a water line from Culpeper County but nothing to date is in the planning

Staff at the Coffeewood WWTP have done an excellent job on operating and maintaining the Wastewater Treatment System

Outfall 001 – Treatment plant discharge

Outfall 002 – RO system discharge

REQUEST for CORRECTIVE ACTION

No deficiencies or issues identified at this inspection

Attachment 5

To	Douglas Frasier
From	Katie Conaway
Date	March 22, 2013
Subject	Planning Statement for DOC – Coffeewood Correctional Center
Permit Number	VA0087718

Information for Outfall 001/002

Discharge Type	Industrial, Major
Discharge Flow	001 – Domestic Wastewater 0 2 MGD
	002 – Industrial Wastewater 0 07 MGD (WTP reject water)
Receiving Stream	Cabin Branch
Latitude / Longitude	001 38° 21′ 53″ / -78° 01′ 36″
	002 38° 21′ 53″ / -78° 01′ 36″
Rivermile	1 54
Streamcode	3-CAB
Waterbody	VAN-E16R
Water Quality Standards	Class III, Section 4
Drainage Area	3 49 mi^2

1 Please provide water quality monitoring information for the receiving stream segment If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall

This facility discharges to Cabin Branch, which flows into Cedar Run There is no monitoring data for the receiving stream The nearest downstream DEQ monitoring stations is Station 3-CED000 59, located on Cedar Run at the Route 522 bridge crossing Station 3-CED000 59 is located approximately 3 32 rivermiles downstream from Outfalls 001 and 002 The following is a summary for Station 3-CED000 59, as taken from the Draft* 2012 Integrated Assessment

Class III, Section 4

DEQ ambient station 3-CED000 59, at Route 522 Citizen monitoring station 3CED-C2-SOS

The aquatic life and recreation uses are considered fully supporting Citizen monitoring notes a high probability of adverse conditions for biota, resulting an observed effect for the aquatic life use The fish consumption use was not assessed

Note No data was submitted for the 2012 assessment period to assess the wildlife use Evaluation of the wildlife use from the previous assessment will be carried forward, including overall category and assessment documentation According to Rule 8 of the 2012 Assessment Guidance Manual (11-2007), "fully supporting waters can only be carried forward as fully supporting for two additional reporting cycles with no new data " 2012 is the first assessment the wildlife use assessment is carried forward

The wildlife use information from the 2010 assessment is as follows
The wildlife use is considered fully supporting

Attachment 6

* Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA The 2012 IR is currently awaiting final approval

2 Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A

No

3 Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B

Table B Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the Draft 2012 Integrated Report*							
Cedar Run	Recreation	*E Coli Bacteria*	1 6 miles	2007	3 48E+11 cfu/year	Max Design Flow of Outfall 001 (0 2 MGD) and *e Coli* criterion (126 cfu/100mL)	Completed 2007

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA The 2012 IR is currently awaiting final approval*

4 Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement

5 Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point

There are no public water supply intakes located within 5 miles of this discharge

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Coffeewood Correctional Center Permit No: VA0087718

Receiving Stream: Cabin Branch Outfall 001 Version: OWP Guidance Memo 00 2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	mg/L
90% Temperature (Annual) =	deg C
90% Temperature (Wet season) =	deg C
90% Maximum pH =	SU
10% Maximum pH =	SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	MGD
7Q10 (Annual) =	MGD
30Q10 (Annual) =	MGD
1Q10 (Wet season) =	MGD
30Q10 (Wet season) =	MGD
30Q5 =	MGD
Harmonic Mean =	MGD

Mixing Information

Annual	1Q10 Mix =	0 %
	7Q10 Mix =	0 %
	30Q10 Mix =	0 %
Wet Season	1Q10 Mix =	0 %
	30Q10 Mix =	0 %

Effluent Information

Mean Hardness (as CaCO3) =	88 4 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	7 9 SU
10% Maximum pH =	7 1 SU
Discharge Flow =	0.2 MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9 9E+02	--	--	na	9 9E+02	--	--	--	--	--	--	--	--		--	na	9 9E+02
Acrolein	0	--	--	na	9 3E+00	--	--	na	9 3E+00	--	--	--	--	--	--	--	--			na	9 3E+00
Acrylonitrile[c]	0	--	--	na	2 5E+00	--	--	na	2 5E+00	--	--	--	--	--	--	--	--	--	--	na	2 5E+00
Aldrin [c]	0	3 0E+00	--	na	5 0E-04	3 0E+00	--	na	5 0E-04	--	--	--	--	--	--	--	--	3 0E+00		na	5 0E 04
Ammonia N (mg/l) (Yearly)	0	1 01E+01	1 42E+00	na	--	1 01E+01	1 42E+00	na	--	--	--	--	--		--	--	--	1 01E+01	1 42E+00	na	
Ammonia N (mg/l) (High Flow)	0	1 01E+01	2 71E+00	na	--	1 01E+01	2 71E+00	na	--	--	--	--	--	--	--	--	--	1 01E+01	2 71E+00	na	
Anthracene	0	--	--	na	4 0E+04	--	--	na	4 0E+04	--	--	--	--	--	--		--			na	4 0E+04
Antimony	0	--	--	na	6 4E+02	--	--	na	6 4E+02	--	--	--	--	--	--		--			na	6 4E+02
Arsenic	0	3 4E+02	1 5E+02	na	--	3 4E+02	1 5E+02	na	--	--		--	--	--	--	--	--	3 4E+02	1 5E+02	na	
Barium	0		--	na	--	--	--	na	--	--	--		--	--	--		--			na	
Benzene [c]	0	--	--	na	5 1E+02	--	--	na	5 1E+02	--	--	--	--	--	--	--	--			na	5 1E+02
Benzidine[c]	0	--		na	2 0E-03	--	--	na	2 0E-03	--			--	--	--		--			na	2 0E-03
Benzo (a) anthracene [c]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--		--	na	1 8E-01
Benzo (b) fluoranthene [c]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--		--	na	1 8E-01
Benzo (k) fluoranthene [c]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--	--		na	1 8E-01
Benzo (a) pyrene [c]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--		--	na	1 8E 01
Bis2 Chloroethyl Ether[c]	0	--	--	na	5 3E+00	--	--	na	5 3E+00	--	--	--	--	--	--	--	--			na	6 3E+00
Bis2 Chloroisopropyl Ether	0	--	--	na	6 5E+04	--	--	na	6 5E+04	--	--	--	--	--	--	--	--	--	--	na	6 5E+04
2 Ethylhexyl Phthalate [c]	0	--	--	na	2 2E+01	--	--	na	2 2E+01	--	--	--	--	--	--	--	--	--		na	2 2E+01
omoform [c]	0	--	--	na	1 4E+03	--	--	na	1 4E+03	--	--	--	--	--	--	--	--	--	--	na	1 4E+03
tylbenzylphthalate	0	--	--	na	1 9E+03	--	--	na	1 9E+03	--	--	--	--	--	--	--	--			na	1 9E+03
dmium	0	3 4E+00	1 0E+00	na	--	3 4E+00	1 0E+00	na	--	--	--	--	--	--	--	--	--	3 4E+00	1 0E+00	na	
rbon Tetrachloride [c]	0	--	--	na	1 6E+01	--	--	na	1 6E+01	--	--	--	--	--	--	--	--			na	1 6E+01
lordane [c]	0	2 4E+00	4 3E-03	na	8 1E-03	2 4E+00	4 3E-03	na	8 1E-03	--	--	--	--	--	--	--	--	2 4E+00	4 3E-03	na	8 1E-03
onde	0	8 6E+05	2 3E+05	na	--	8 6E+05	2 3E+05	na	--	--	--	--	--	--	--	--	--	8 6E+05	2 3E+05	na	
C	0	1 9E+01	1 1E+01	na	--	1 9E+01	1 1E+01	na	--	--	--	--	--	--	--	--	--	1 9E+01	1 1E+01	na	
orobenzene	0	--	--	na	1 6E+03	--	--	na	1 6E+03	--	--	--	--	--	--	--	--			na	1 6E+03

Attachment 7

Parameter (ug/l unless noted)	Background Conc	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1 3E+02	--	--	na	1 3E+02	--	--	--	--	--	--	--	--	--		na	1 3E+02
Chloroform	0	--	--	na	1 1E+04	--	--	na	1 1E+04	--	--	--	--	--	--	--	--			na	1 1E+04
2 Chloronaphthalene	0	--	--	na	1 6E+03	--	--	na	1 6E+03	--	--	--	--	--	--	--	--	--	--	na	1 6E+03
2 Chlorophenol	0	--	--	na	1 5E+02	--	--	na	1 5E+02	--	--	--	--			--	--	--		na	1 5E+02
Chlorpyrifos	0	8 3E-02	4 1E-02	na	--	8 3E-02	4 1E-02	na	--	--	--	--	--	--	--	--	--	8 3E-02	4 1E-02	na	
Chromium III	0	5 2E+02	6 7E+01	na	--	5 2E+02	6 7E+01	na	--	--	--	--	--	--	--	--	--	5 2E+02	6 7E+01	na	
Chromium VI	0	1 6E+01	1 1E+01	na	--	1 6E+01	1 1E+01	na	--	--	--	--	--	--	--	--	--	1 6E+01	1 1E+01	na	
Chromium Total	0	--	--	1 0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Chrysene[C]	0	--	--	na	1 8E-02	--	--	na	1 8E-02	--	--	--	--	--	--	--	--		--	na	1 8E-02
Copper	0	1 2E+01	8 1E+00	na	--	1 2E+01	8 1E+00	na	--	--	--	--	--		--			1 2E+01	8 1E+00	na	
Cyanide Free	0	2 2E+01	5 2E+00	na	1 6E+04	2 2E+01	5 2E+00	na	1 6E+04	--	--	--	--	--	--	--	--	2 2E+01	5 2E+00	na	1 6E+04
DDD[C]	0	--	--	na	3 1E-03	--	--	na	3 1E-03	--	--	--	--	--	--	--				na	3 1E-03
DDE[C]	0	--	--	na	2 2E 03	--	--	na	2 2E-03	--	--	--	--	--	--	--	--	--	--	na	2 2E-03
DDT[C]	0	1 1E+00	1 0E-03	na	2 2E-03	1 1E+00	1 0E-03	na	2 2E-03	--	--	--	--	--	--	--	--	1 1E+00	1 0E-03	na	2 2E 03
Demeton	0	--	1 0E-01	na	--	--	1 0E-01	na	--	--	--	--	--	--	--	--	--		1 0E-01	na	
Diazinon	0	1 7E-01	1 7E-01	na	--	1 7E-01	1 7E-01	na	--	--	--	--	--	--	--	--		1 7E 01	1 7E-01	na	
Dibenz(a h)anthracene[C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--	--		na	1 8E-01
1 2 Dichlorobenzene	0	--	--	na	1 3E+03	--	--	na	1 3E+03	--	--	--	--	--	--	--	--			na	1 3E+03
1 3 Dichlorobenzene	0	--	--	na	9 6E+02	--	--	na	9 6E+02	--	--	--	--	--	--	--	--	--	--	na	9 6E+02
1 4 Dichlorobenzene	0	--	--	na	1 9E+02	--	--	na	1 9E+02	--	--	--	--	--	--	--	--	--		na	1 9E+02
3 3 Dichlorobenzidine[C]	0	--	--	na	2 8E-01	--	--	na	2 8E-01	--	--	--	--	--	--	--	--			na	2 8E 01
Dichlorobromomethane[C]	0	--	--	na	1 7E+02	--	--	na	1 7E+02	--	--	--	--	--	--	--				na	1 7E+02
1 2 Dichloroethane[C]	0	--	--	na	3 7E+02	--	--	na	3 7E+02	--	--	--	--	--	--	--	--			na	3 7E+02
1 1 Dichloroethylene	0	--	--	na	7 1E+03	--	--	na	7 1E+03	--	--	--	--	--	--	--	--	--	--	na	7 1E+03
1 2 trans-dichloroethylene	0	--	--	na	1 0E+04	--	--	na	1 0E+04	--	--	--	--	--	--	--	--			na	1 0E+04
2 4 Dichlorophenol	0	--	--	na	2 9E+02	--	--	na	2 9E+02	--	--	--	--	--	--	--	--			na	2 9E+02
2 4 Dichlorophenoxy acetic acid (2 4 D)	0		--	na	--	--	--	na	--		--	--	--	--		--	--	--	--	na	
1 2 Dichloropropane[C]	0	--	--	na	1 5E+02	--	--	na	1 5E+02	--	--	--	--	--	--	--	--			na	1 5E+02
1 3 Dichloropropene[C]	0	--	--	na	2 1E+02	--	--	na	2 1E+02	--	--	--	--	--	--	--	--			na	2 1E+02
Dieldrin[C]	0	2 4E-01	5 6E-02	na	5 4E-04	2 4E-01	5 6E-02	na	5 4E-04	--	--	--	--	--	--	--	--	2 4E-01	5 6E-02	na	5 4E-04
Diethyl Phthalate	0	--	--	na	4 4E+04	--	--	na	4 4E+04	--	--	--	--	--	--	--	--			na	4 4E+04
2 4 Dimethylphenol	0	--	--	na	8 5E+02	--	--	na	8 5E+02	--	--	--	--	--	--	--	--		--	na	8 5E+02
Dimethyl Phthalate	0	--	--	na	1 1E+06	--	--	na	1 1E+06	--	--	--	--	--	--		--		--	na	1 1E+06
Di-n Butyl Phthalate	0	--	--	na	4 5E+03	--	--	na	4 5E+03	--	--	--	--	--	--	--	--	--		na	4 5E+03
2 4 Dinitrophenol	0	--	--	na	5 3E+03	--	--	na	5 3E+03	--	--	--	--		--	--	--			na	5 3E+03
2 Methyl-4 6 Dinitrophenol	0	--	--	na	2 8E+02	--	--	na	2 8E+02	--	--	--	--	--	--	--	--			na	2 8E+02
2 4 Dinitrotoluene[C]	0	--	--	na	3 4E+01	--	--	na	3 4E+01	--	--	--	--	--	--	--				na	3 4E+01
Dioxin 2 3 7 8 tetrachlorodibenzo p-dioxin	0	--	--	na	5 1E-08	--	--	na	5 1E-08	--	--	--	--	--	--	--	--			na	5 1E 08
1 2 Diphenylhydrazine[C]	0	--	--	na	2 0E+00	--	--	na	2 0E+00	--	--	--	--	--	--	--				na	2 0E+00
Alpha Endosulfan	0	2 2E-01	5 6E-02	na	8 9E+01	2 2E-01	5 6E-02	na	8 9E+01	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	na	8 9E+01
Beta Endosulfan	0	2 2E-01	5 6E-02	na	8 9E+01	2 2E-01	5 6E-02	na	8 9E+01	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	na	8 9E+01
Alpha + Beta Endosulfan	0	2 2E-01	5 6E-02	--	--	2 2E-01	5 6E-02	--	--	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	--	
Endosulfan Sulfate	0	--	--	na	8 9E+01	--	--	na	8 9E+01	--	--	--	--	--	--	--	--		--	na	8 9E+01
Endrin	0	8 6E-02	3 6E-02	na	6 0E-02	8 6E-02	3 6E-02	na	6 0E-02	--	--	--	--	--	--	--		8 6E-02	3 6E-02	na	6 0E-02
Endrin Aldehyde	0	--	--	na	3 0E-01	--	--	na	3 0E-01	--	--	--	--	--	--	--	--		--	na	3 0E-01

Parameter (ug/l unless noted)	Background Conc	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2 1E+03	--	--	na	2 1E+03	--	--	--	--	--	--	--	--	--	--	na	2 1E+03
Fluoranthene	0	--	--	na	1 4E+02	--	--	na	1 4E+02	--	--	--	--	--	--	--	--	--		na	1 4E+02
Fluorene	0	--	--	na	5 3E+03	--	--	na	5 3E+03	--	--	--	--	--	--	--	--	--	--	na	5 3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	
Guthion	0	--	1 0E-02	na	--	--	1 0E-02	na	--	--	--	--	--	--	--	--	--	--	1 0E-02	na	--
Heptachlor [C]	0	5 2E-01	3 8E-03	na	7 9E-04	5 2E-01	3 8E-03	na	7 9E-04	--	--	--	--	--	--	--	--	5 2E-01	3 8E-03	na	7 9E 04
Heptachlor Epoxide[C]	0	5 2E-01	3 8E-03	na	3 9E-04	5 2E-01	3 8E-03	na	3 9E-04	--	--	--	--	--	--	--	--	5 2E-01	3 8E-03	na	3 9E-04
Hexachlorobenzene[C]	0	--	--	na	2 9E-03	--	--	na	2 9E-03	--	--	--	--	--	--	--				na	2 9E-03
Hexachlorobutadiene[C]	0	--	--	na	1 8E+02	--	--	na	1 8E+02	--	--	--	--	--	--	--	--	--	--	na	1 8E+02
Hexachlorocyclohexane Alpha BHC[C]	0	--	--	na	4 9E-02	--	--	na	4 9E-02	--	--	--	--	--	--	--	--			na	4 9E-02
Hexachlorocyclohexane Beta BHC[C]	0	--	--	na	1 7E-01	--	--	na	1 7E-01	--	--	--	--	--	--	--	--			na	1 7E-01
Hexachlorocyclohexane Gamma BHC[C] (Lindane)	0	9 5E-01	na	na	1 8E+00	9 5E-01	--	na	1 8E+00	--	--	--	--	--	--	--	--	9 5E-01		na	1 8E+00
Hexachlorocyclopentadiene	0	--	--	na	1 1E+03	--	--	na	1 1E+03	--	--	--	--	--	--	--	--			na	1 1E+03
Hexachloroethane[C]	0	--	--	na	3 3E+01	--	--	na	3 3E+01	--	--	--	--	--	--	--	--			na	3 3E+01
Hydrogen Sulfide	0	--	2 0E+00	na	--	--	2 0E+00	na	--	--	--	--	--	--	--	--	--		2 0E+00	na	
Indeno (1 2 3-cd) pyrene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--	--		na	1 8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Isophorone[C]	0	--	--	na	9 6E+03	--	--	na	9 6E+03	--	--	--	--	--	--	--	--	--		na	9 6E+03
Kepone	0	--	0 0E+00	na	--	--	0 0E+00	na	--	--	--	--	--	--	--		--		0 0E+00	na	
Lead	0	1 0E+02	1 2E+01	na	--	1 0E+02	1 2E+01	na	--	--	--	--	--	--	--	--	--	1 0E+02	1 2E+01	na	--
Malathion	0	--	1 0E-01	na	--	--	1 0E-01	na	--	--	--		--	--	--	--			1 0E-01	na	
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Mercury	0	1 4E+00	7 7E-01			1 4E+00	7 7E-01			--	--	--	--	--		--		1 4E+00	7 7E 01		
Methyl Bromide	0	--	--	na	1 5E+03	--	--	na	1 5E+03	--	--	--	--	--	--	--	--			na	1 5E+03
Methylene Chloride [C]	0		--	na	5 9E+03	--		na	5 9E+03	--	--	--	--	--	--	--	--			na	5 9E+03
Methoxychlor	0	--	3 0E-02	na	--	--	3 0E-02	na	--	--	--	--	--	--	--	--			3 0E-02	na	
Mirex	0	--	0 0E+00	na	--	--	0 0E+00	na	--	--	--		--	--	--	--	--		0 0E+00	na	
Nickel	0	1 6E+02	1 8E+01	na	4 6E+03	1 6E+02	1 8E+01	na	4 6E+03	--	--	--	--	--	--	--	--	1 6E+02	1 8E+01	na	4 6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	
Nitrobenzene	0	--	--	na	6 9E+02	--	--	na	6 9E+02	--	--	--	--	--	--	--	--	--		na	6 9E+02
N Nitrosodimethylamine[C]	0	--	--	na	3 0E+01	--	--	na	3 0E+01	--	--	--	--	--	--	--	--			na	3 0E+01
N Nitrosodiphenylamine[C]	0	--	--	na	6 0E+01	--	--	na	6 0E+01	--	--	--	--	--	--	--	--		--	na	6 0E+01
N Nitrosodi n propylamine[C]	0	--	--	na	5 1E+00	--	--	na	5 1E+00	--	--	--	--	--	--	--	--			na	5 1E+00
Nonylphenol	0	2 8E+01	6 6E+00	--	--	2 8E+01	6 6E+00	na	--	--	--	--	--	--	--	--	--	2 8E+01	6 6E+00	na	
Parathion	0	6 5E-02	1 3E-02	na	--	6 5E-02	1 3E-02	na	--	--	--	--	--	--	--	--	--	6 5E-02	1 3E-02	na	--
PCB Total[C]	0	--	1 4E-02	na	6 4E-04	--	1 4E-02	na	6 4E-04	--	--	--	--	--	--	--	--	--	1 4E-02	na	6 4E-04
Pentachlorophenol [C]	0	9 6E+00	7 4E+00	na	3 0E+01	9 6E+00	7 4E+00	na	3 0E+01	--	--	--	--	--	--	--	--	9 6E+00	7 4E+00	na	3 0E+01
Phenol	0	--	--	na	8 6E+05	--	--	na	8 6E+05	--	--	--	--	--	--	--	--	--		na	8 6E+05
Pyrene	0	--	--	na	4 0E+03	--	--	na	4 0E+03	--	--	--	--	--	--	--	--		--	na	4 0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--		--	--	--	--	--	--	--			na	
Beta and Photon Activity (mrem/yr)	0	--	--	na	4 0E+00	--	--	na	4 0E+00	--	--	--	--	--	--	--	--		--	na	4 0E+00
Radium 226 + 228 (pCi/L)	0	--		na	--	--	--	na	--	--	--		--	--	--	--	--	--		na	
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	

Parameter (ug/l unless noted)	Background Conc	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium Total Recoverable	0	2 0E+01	5 0E+00	na	4 2E+03	2 0E+01	5 0E+00	na	4 2E+03	--	--	--	--	--	--	--	--	2 0E+01	5 0E+00	na	4 2E+03
Silver	0	2 8E+00	--	na	--	2 8E+00	--	na	--	--	--	--	--	--	--	--	--	2 8E+00		na	
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
1 1 2 2 Tetrachloroethane[C]	0	--	--	na	4 0E+01	--	--	na	4 0E+01	--	--	--	--	--	--	--	--	--	--	na	4 0E+01
Tetrachloroethylene[C]	0	--	--	na	3 3E+01	--	--	na	3 3E+01	--	--	--	--	--	--	--	--			na	3 3E+01
Thallium	0	--	--	na	4 7E-01	--	--	na	4 7E-01	--	--	--	--	--	--	--	--			na	4 7E-01
Toluene	0	--	--	na	6 0E+03	--	--	na	6 0E+03	--	--	--	--	--	--	--	--	--	--	na	6 0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	--
Toxaphene [C]	0	7 3E-01	2 0E-04	na	2 8E-03	7 3E-01	2 0E-04	na	2 8E-03	--	--	--	--	--	--	--	--	7 3E-01	2 0E 04	na	2 8E-03
Tributyltin	0	4 6E-01	7 2E-02	na	--	4 6E-01	7 2E-02	na	--	--	--	--	--	--	--	--	--	4 6E-01	7 2E-02	na	
1 2 4 Trichlorobenzene	0	--	--	na	7 0E+01	--	--	na	7 0E+01	--	--	--	--	--	--	--	--		--	na	7 0E+01
1 1 2 Trichloroethane[C]	0	--	--	na	1 6E+02	--	--	na	1 6E+02	--	--	--	--	--	--	--	--		--	na	1 6E+02
Trichloroethylene [C]	0	--	--	na	3 0E+02	--	--	na	3 0E+02	--	--		--	--	--	--	--			na	3 0E+02
2 4 6 Trichlorophenol [C]	0	--	--	na	2 4E+01	--	--	na	2 4E+01	--	--	--	--	--	--	--	--			na	2 4E+01
2 (2 4 5 Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--					na	
Vinyl Chloride[C]	0	--	--	na	2 4E+01	--	--	na	2 4E+01	--	--	--	--	--	--	--	--	--	--	na	2 4E+01
Zinc	0	1 1E+02	1 1E+02	na	2 6E+04	1 1E+02	1 1E+02	na	2 6E+04	--	--	--	--	--	--	--	--	1 1E+02	1 1E+02	na	2 6E+04

Notes

1 All concentrations expressed as micrograms/liter (ug/l) unless noted otherwise

2 Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals

3 Metals measured as Dissolved unless specified otherwise

4 C indicates a carcinogenic parameter

5 Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information
Antidegradation WLAs are based upon a complete mix

6 Antideg Baseline = (0 25(WQC background conc) + background conc) for acute and chronic
= (0 1(WQC background conc) + background conc) for human health

7 WLAs established at the following stream flows 1Q10 for Acute 30Q10 for Chronic Ammonia 7Q10 for Other Chronic 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens To apply mixing ratios from a model set the stream flow equal to (mixing ratio 1) effluent flow equal to 1 and 100 % mix

Metal	Target Value (SSTV)
Antimony	6 4E+02
Arsenic	9 0E+01
Barium	na
Cadmium	6 2E-01
Chromium III	4 0E+01
Chromium VI	6 4E+00
Copper	4 8E+00
Iron	na
Lead	6 9E+00
Manganese	na
Mercury	4 6E-01
Nickel	1 1E+01
Selenium	3 0E+00
Silver	1 1E+00
Zinc	4 2E+01

Note do not use QL s lower than the minimum QL s provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Coffeewood Correctional Center Permit No: VA0087718

Receiving Stream: Cabin Branch Outfall 002 Version: OWP Guidance Memo 00 2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	mg/L
90% Temperature (Annual) =	deg C
90% Temperature (Wet season) =	deg C
90% Maximum pH =	SU
10% Maximum pH =	SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	MGD
7Q10 (Annual) =	MGD
30Q10 (Annual) =	MGD
1Q10 (Wet season) =	MGD
30Q10 (Wet season) =	MGD
30Q5 =	MGD
Harmonic Mean =	MGD

Mixing Information

Annual	1Q10 Mix =	0 %
	7Q10 Mix =	0 %
	30Q10 Mix =	0 %
Wet Season	1Q10 Mix =	0 %
	30Q10 Mix =	0 %

Effluent Information

Mean Hardness (as CaCO3) =	88 4 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	7 7 SU
10% Maximum pH =	7 6 SU
Discharge Flow =	0 07 MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9 9E+02	--	--	na	9 9E+02	--	--	--	--	--	--		--		--	na	9 9E+02
Acrolein	0	--	--	na	9 3E+00	--	--	na	9 3E+00	--	--	--	--	--	--	--	--	--		na	9 3E+00
Acrylonitrile[C]	0	--	--	na	2 5E+00	--	--	na	2 5E+00	--	--	--	--	--	--		--			na	2 5E+00
Aldrin [C]	0	3 0E+00	--	na	5 0E-04	3 0E+00	--	na	5 0E-04	--	--	--	--	--	--		--	3 0E+00		na	5 0E-04
Ammonia N (mg/l) (Yearly)	0	1 44E+01	1 82E+00	na	--	1 44E+01	1 82E+00	na	--	--	--	--		--	--		--	1 44E+01	1 82E+00	na	
Ammonia N (mg/l) (High Flow)	0	1 44E+01	3 47E+00	na	--	1 44E+01	3 47E+00	na	--		--	--	--	--	--	--		1 44E+01	3 47E+00	na	
Anthracene	0	--	--	na	4 0E+04	--	--	na	4 0E+04	--	--	--	--	--	--	--	--			na	4 0E+04
Antimony	0		--	na	6 4E+02	--	--	na	6 4E+02	--	--	--	--	--	--	--	--			na	6 4E+02
Arsenic	0	3 4E+02	1 5E+02	na	--	3 4E+02	1 5E+02	na	--	--	--	--	--	--	--	--	--	3 4E+02	1 5E+02	na	
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Benzene [C]	0	--	--	na	5 1E+02	--	--	na	5 1E+02	--	--	--	--	--	--	--	--	--		na	5 1E+02
Benzidine[C]	0	--		na	2 0E-03	--	--	na	2 0E-03	--	--	--		--	--	--	--			na	2 0E-03
Benzo (a) anthracene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--		--	na	1 8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--			na	1 8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--	--	--	na	1 8E-01
Benzo (a) pyrene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--					na	1 8E-01
Bis2 Chloroethyl Ether [C]	0	--	--	na	5 3E+00	--	--	na	5 3E+00	--	--	--	--	--	--	--	--	--	--	na	5 3E+00
Chloroisopropyl Ether	0	--	--	na	6 5E+04	--	--	na	6 5E+04	--	--	--	--	--		--	--	--		na	6 5E+04
2 Ethylhexyl Phthalate [C]	0	--	--	na	2 2E+01	--	--	na	2 2E+01	--	--	--	--	--	--	--	--	--	--	na	2 2E+01
noform [C]	0	--	--	na	1 4E+03	--	--	na	1 4E+03	--	--	--	--	--	--	--	--		--	na	1 4E+03
/ibenzylphthalate	0	--	--	na	1 9E+03	--	--	na	1 9E+03	--	--	--	--	--	--	--	--	--	--	na	1 9E+03
lmium	0	3 4E+00	1 0E+00	na	--	3 4E+00	1 0E+00	na	--	--	--	--	--	--	--	--	--	3 4E+00	1 0E+00	na	
bon Tetrachloride [C]	0	--	--	na	1 6E+01	--	--	na	1 6E+01	--	--	--	--	--	--	--	--	--	--	na	1 6E+01
ordane [C]	0	2 4E+00	4 3E-03	na	8 1E-03	2 4E+00	4 3E-03	na	8 1E-03	--	--	--	--	--	--	--	--	2 4E+00	4 3E 03	na	8 1E 03
onde	0	8 6E+05	2 3E+05	na	--	8 6E+05	2 3E+05	na	--	--	--	--	--	--	--	--	--	8 6E+05	2 3E+05	na	
C	0	1 9E+01	1 1E+01	na	--	1 9E+01	1 1E+01	na	--	--	--	--	--	--	--	--	--	1 9E+01	1 1E+01	na	
Chlorobenzene	0	--	--	na	1 6E+03	--	--	na	1 6E+03	--	--	--	--	--	--	--	--	--	--	na	1 6E+03

Attachment 7

Parameter (ug/l unless noted)	Background Conc	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1 3E+02	--	--	na	1 3E+02	--	--	--	--	--	--	--	--		--	na	1 3E+02
Chloroform	0	--	--	na	1 1E+04	--	--	na	1 1E+04	--	--	--	--	--	--	--	--	--	--	na	1 1E+04
2 Chloronaphthalene	0	--	--	na	1 6E+03	--	--	na	1 6E+03	--	--	--	--	--	--	--	--			na	1 6E+03
2-Chlorophenol	0	--	--	na	1 5E+02	--	--	na	1 5E+02	--	--	--	--	--	--	--	--	--		na	1 5E+02
Chlorpyrifos	0	8 3E-02	4 1E-02	na	--	8 3E-02	4 1E-02	na	--	--	--	--	--	--	--	--	--	8 3E 02	4 1E-02	na	
Chromium III	0	5 2E+02	6 7E+01	na	--	5 2E+02	6 7E+01	na	--	--	--	--	--	--	--	--	--	5 2E+02	6 7E+01	na	
Chromium VI	0	1 6E+01	1 1E+01	na	--	1 6E+01	1 1E+01	na	--	--	--	--	--	--	--	--	--	1 6E+01	1 1E+01	na	
Chromium Total	0	--	--	1 0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	
Chrysene[C]	0	--	--	na	1 8E-02	--	--	na	1 8E-02	--	--	--	--	--	--	--	--	--	--	na	1 8E-02
Copper	0	1 2E+01	8 1E+00	na	--	1 2E+01	8 1E+00	na	--	--	--	--	--	--	--	--	--	1 2E+01	8 1E+00	na	--
Cyanide Free	0	2 2E+01	5 2E+00	na	1 6E+04	2 2E+01	5 2E+00	na	1 6E+04	--	--	--	--	--	--	--	--	2 2E+01	5 2E+00	na	1 6E+04
DDD[C]	0	--	--	na	3 1E-03	--	--	na	3 1E-03	--	--	--	--	--	--	--	--		--	na	3 1E-03
DDE[C]	0	--	--	na	2 2E-03	--	--	na	2 2E-03	--	--	--	--	--	--	--	--		--	na	2 2E-03
DDT[C]	0	1 1E+00	1 0E-03	na	2 2E-03	1 1E+00	1 0E-03	na	2 2E-03	--	--	--	--	--	--	--	--	1 1E+00	1 0E-03	na	2 2E-03
Demeton	0	--	1 0E-01	na	--	--	1 0E-01	na	--	--	--	--	--	--	--	--	--		1 0E-01	na	
Diazinon	0	1 7E-01	1 7E-01	na	--	1 7E-01	1 7E-01	na		--	--	--	--	--	--	--	--	1 7E-01	1 7E 01	na	
Dibenz(a h)anthracene[C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--			na	1 8E-01
1 2 Dichlorobenzene	0	--	--	na	1 3E+03	--	--	na	1 3E+03	--	--	--	--	--	--		--			na	1 3E+03
1 3 Dichlorobenzene	0	--	--	na	9 6E+02	--	--	na	9 6E+02	--	--	--	--	--	--	--	--	--		na	9 6E+02
1 4 Dichlorobenzene	0	--		na	1 9E+02	--	--	na	1 9E+02	--	--	--		--	--		--		--	na	1 9E+02
3 3 Dichlorobenzidine[C]	0	--	--	na	2 8E-01	--	--	na	2 8E-01	--	--	--	--	--	--	--	--		--	na	2 8E-01
Dichlorobromomethane[C]	0	--	--	na	1 7E+02	--	--	na	1 7E+02	--	--	--	--	--	--	--				na	1 7E+02
1 2 Dichloroethane[C]	0	--	--	na	3 7E+02	--	--	na	3 7E+02	--	--	--		--	--		--			na	3 7E+02
1 1 Dichloroethylene	0	--	--	na	7 1E+03	--	--	na	7 1E+03	--	--	--	--	--	--	--	--			na	7 1E+03
1 2 trans-dichloroethylene	0		--	na	1 0E+04	--	--	na	1 0E+04	--	--	--	--	--	--	--				na	1 0E+04
2 4 Dichlorophenol	0	--	--	na	2 9E+02	--	--	na	2 9E+02	--	--	--	--	--	--	--				na	2 9E+02
2 4 Dichlorophenoxy acetic acid (2 4 D)	0	--		na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
1 2 Dichloropropane[C]	0	--	--	na	1 5E+02	--	--	na	1 5E+02	--	--	--	--	--	--	--	--		--	na	1 5E+02
1 3 Dichloropropene[C]	0	--	--	na	2 1E+02	--	--	na	2 1E+02	--	--	--	--	--	--	--	--		--	na	2 1E+02
Dieldrin[C]	0	2 4E-01	5 6E-02	na	5 4E-04	2 4E-01	5 6E-02	na	5 4E-04	--	--	--	--	--	--	--	--	2 4E-01	5 6E-02	na	5 4E-04
Diethyl Phthalate	0	--	--	na	4 4E+04	--	--	na	4 4E+04	--	--	--	--	--	--	--	--			na	4 4E+04
2 4 Dimethylphenol	0	--	--	na	8 5E+02	--	--	na	8 5E+02	--	--	--	--	--	--	--	--		--	na	8 5E+02
Dimethyl Phthalate	0	--	--	na	1 1E+06	--	--	na	1 1E+06	--	--	--	--	--	--	--				na	1 1E+06
Di n Butyl Phthalate	0	--	--	na	4 5E+03	--	--	na	4 5E+03	--	--	--	--	--	--	--	--		--	na	4 5E+03
2 4 Dinitrophenol	0	--	--	na	5 3E+03	--	--	na	5 3E+03	--	--	--	--	--	--	--	--		--	na	5 3E+03
2 Methyl-4 6 Dinitrophenol	0	--	--	na	2 8E+02	--	--	na	2 8E+02	--	--	--	--	--	--	--	--			na	2 8E+02
2 4 Dinitrotoluene[C]	0	--	--	na	3 4E+01	--	--	na	3 4E+01	--	--	--	--	--	--	--	--		--	na	3 4E+01
Dioxin 2 3 7 8 tetrachlorodibenzo p-dioxin	0	--	--	na	5 1E-08	--	--	na	5 1E-08	--	--	--	--	--	--	--	--		--	na	5 1E-08
1 2 Diphenylhydrazine[C]	0	--	--	na	2 0E+00	--	--	na	2 0E+00	--	--	--	--	--	--	--	--	--	--	na	2 0E+00
Alpha Endosulfan	0	2 2E-01	5 6E-02	na	8 9E+01	2 2E-01	5 6E-02	na	8 9E+01	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	na	8 9E+01
Beta Endosulfan	0	2 2E-01	5 6E-02	na	8 9E+01	2 2E-01	5 6E-02	na	8 9E+01	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	na	8 9E+01
Alpha + Beta Endosulfan	0	2 2E-01	5 6E-02	--	--	2 2E-01	5 6E-02	--	--	--	--	--	--	--	--	--	--	2 2E-01	5 6E-02	--	
Endosulfan Sulfate	0	--	--	na	8 9E+01	--	--	na	8 9E+01	--	--	--	--	--	--	--	--	--		na	8 9E+01
Endrin	0	8 6E-02	3 6E-02	na	6 0E-02	8 6E-02	3 6E-02	na	6 0E-02	--	--	--	--	--	--	--	--	8 6E-02	3 6E-02	na	6 0E-02
Endrin Aldehyde	0	--	--	na	3 0E-01	--	--	na	3 0E-01	--	--	--	--	--	--	--	--	--		na	3 0E-01

Parameter (ug/l unless noted)	Background Conc	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2 1E+03	--	--	na	2 1E+03	--	--	--	--	--	--	--	--	--		na	2 1E+03
Fluoranthene	0	--	--	na	1 4E+02	--	--	na	1 4E+02	--	--	--	--	--	--	--	--	--	--	na	1 4E+02
Fluorene	0	--	--	na	5 3E+03	--	--	na	5 3E+03	--	--	--	--	--		--	--			na	5 3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	
Guthion	0	--	1 0E-02	na	--	--	1 0E-02	na	--	--	--	--	--	--	--	--	--	--	1 0E-02	na	
Heptachlor [C]	0	5 2E-01	3 8E-03	na	7 9E-04	5 2E-01	3 8E-03	na	7 9E-04	--	--	--	--	--	--	--	--	5 2E-01	3 8E-03	na	7 9E-04
Heptachlor Epoxide[C]	0	5 2E-01	3 8E-03	na	3 9E-04	5 2E-01	3 8E-03	na	3 9E-04	--	--	--	--	--	--	--	--	5 2E-01	3 8E-03	na	3 9E-04
Hexachlorobenzene[C]	0	--	--	na	2 9E-03	--	--	na	2 9E-03	--	--	--	--	--	--	--	--	--		na	2 9E-03
Hexachlorobutadiene[C]	0	--	--	na	1 8E+02	--	--	na	1 8E+02	--	--	--	--	--	--	--	--	--	--	na	1 8E+02
Hexachlorocyclohexane Alpha BHC[C]	0	--	--	na	4 9E-02	--	--	na	4 9E-02	--	--	--	--	--	--	--	--		--	na	4 9E 02
Hexachlorocyclohexane Beta BHC[C]	0	--	--	na	1 7E-01	--	--	na	1 7E-01	--	--	--	--	--	--	--			--	na	1 7E-01
Hexachlorocyclohexane Gamma BHC[C] (Lindane)	0	9 5E-01	na	na	1 8E+00	9 5E-01	--	na	1 8E+00	--	--	--	--	--	--	--	--	9 5E-01		na	1 8E+00
Hexachlorocyclopentadiene	0	--	--	na	1 1E+03	--	--	na	1 1E+03	--	--	--	--	--	--	--	--	--	--	na	1 1E+03
Hexachloroethane[C]	0	--	--	na	3 3E+01	--	--	na	3 3E+01	--	--	--	--	--	--	--	--			na	3 3E+01
Hydrogen Sulfide	0	--	2 0E+00	na	--	--	2 0E+00	na	--	--	--	--	--	--	--	--	--		2 0E+00	na	
Indeno (1 2 3-cd) pyrene [C]	0	--	--	na	1 8E-01	--	--	na	1 8E-01	--	--	--	--	--	--	--	--			na	1 8E 01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
Isophorone[C]	0	--	--	na	9 6E+03	--	--	na	9 6E+03	--	--	--	--	--	--	--	--			na	9 6E+03
Kepone	0	--	0 0E+00	na	--	--	0 0E+00	na	--	--	--	--	--	--	--				0 0E+00	na	
Lead	0	1 0E+02	1 2E+01	na	--	1 0E+02	1 2E+01	na	--	--	--	--	--	--	--	--	--	1 0E+02	1 2E+01	na	--
Malathion	0	--	1 0E-01	na	--	--	1 0E-01	na			--	--	--	--					1 0E 01	na	
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	
Mercury	0	1 4E+00	7 7E 01			1 4E+00	7 7E-01			--	--	--	--	--	--	--		1 4E+00	7 7E 01		
Methyl Bromide	0	--	--	na	1 5E+03	--	--	na	1 5E+03	--	--	--	--	--	--	--	--	--	--	na	1 5E+03
Methylene Chloride [C]	0	--	--	na	5 9E+03	--	--	na	5 9E+03	--	--	--	--	--		--		--		na	5 9E+03
Methoxychlor	0	--	3 0E-02	na	--	--	3 0E-02	na	--	--	--	--	--	--	--	--	--		3 0E-02	na	
Mirex	0	--	0 0E+00	na	--	--	0 0E+00	na	--	--	--	--	--	--	--	--	--		0 0E+00	na	
Nickel	0	1 6E+02	1 8E+01	na	4 6E+03	1 6E+02	1 8E+01	na	4 6E+03	--	--	--	--	--	--	--	--	1 6E+02	1 8E+01	na	4 6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	
Nitrobenzene	0	--	--	na	6 9E+02	--	--	na	6 9E+02	--	--	--	--	--	--	--	--			na	6 9E+02
N Nitrosodimethylamine[C]	0	--	--	na	3 0E+01	--	--	na	3 0E+01	--	--	--	--	--	--	--	--	--	--	na	3 0E+01
N Nitrosodiphenylamine[C]	0	--	--	na	6 0E+01	--	--	na	6 0E+01	--	--	--	--	--	--	--	--			na	6 0E+01
N Nitrosodi n propylamine[C]	0	--	--	na	5 1E+00	--	--	na	5 1E+00	--	--	--		--	--	--	--	--	--	na	5 1E+00
Nonylphenol	0	2 8E+01	6 6E+00	--	--	2 8E+01	6 6E+00	na	--	--	--	--	--	--	--	--	--	2 8E+01	6 6E+00	na	
Parathion	0	6 5E-02	1 3E-02	na	--	6 5E-02	1 3E-02	na	--	--	--	--	--	--	--	--	--	6 5E-02	1 3E-02	na	
PCB Total[C]	0	--	1 4E-02	na	6 4E-04	--	1 4E-02	na	6 4E-04	--	--	--	--	--	--	--	--		1 4E-02	na	6 4E-04
Pentachlorophenol [C]	0	1 6E+01	1 2E+01	na	3 0E+01	1 6E+01	1 2E+01	na	3 0E+01	--	--	--	--	--	--	--	--	1 6E+01	1 2E+01	na	3 0E+01
Phenol	0	--	--	na	8 6E+05	--	--	na	8 6E+05	--	--	--	--	--	--	--	--	--		na	8 6E+05
Pyrene	0	--	--	na	4 0E+03	--	--	na	4 0E+03	--	--	--	--	--	--	--	--	--	--	na	4 0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--		na	
Beta and Photon Activity (mrem/yr)	0	--	--	na	4 0E+00	--	--	na	4 0E+00	--	--	--	--	--	--	--	--			na	4 0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium Total Recoverable	0	2 0E+01	5 0E+00	na	4 2E+03	2 0E+01	5 0E+00	na	4 2E+03	--	--	--	--	--	--	--	--	2 0E+01	5 0E+00	na	4 2E+03
Silver	0	2 8E+00	--	na	--	2 8E+00	--	na	--	--	--	--	--	--	--	--	--	2 8E+00	--	na	
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--			na	
1 1 2 2 Tetrachloroethane[C]	0	--		na	4 0E+01	--	--	na	4 0E+01	--	--	--	--	--	--	--	--	--	--	na	4 0E+01
Tetrachloroethylene[C]	0	--	--	na	3 3E+01	--	--	na	3 3E+01	--	--	--	--	--	--	--	--	--	--	na	3 3E+01
Thallium	0	--	--	na	4 7E-01	--	--	na	4 7E-01	--	--	--	--	--	--	--	--	--		na	4 7E-01
Toluene	0	--	--	na	6 0E+03	--	--	na	6 0E+03	--	--	--	--	--	--	--	--	--	--	na	6 0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--				na	
Toxaphene [C]	0	7 3E-01	2 0E-04	na	2 8E-03	7 3E-01	2 0E-04	na	2 8E-03	--	--	--	--	--	--	--	--	7 3E-01	2 0E-04	na	2 8E-03
Tributyltin	0	4 6E-01	7 2E-02	na	--	4 6E-01	7 2E-02	na	--	--	--	--	--	--	--	--	--	4 6E-01	7 2E-02	na	
1 2 4 Trichlorobenzene	0	--	--	na	7 0E+01	--	--	na	7 0E+01	--	--	--	--	--	--		--	--		na	7 0E+01
1 1 2 Trichloroethane[C]	0	--	--	na	1 6E+02	--	--	na	1 6E+02	--	--	--	--	--	--	--	--	--		na	1 6E+02
Trichloroethylene [C]	0	--	--	na	3 0E+02	--	--	na	3 0E+02	--	--	--	--	--	--	--	--			na	3 0E+02
2 4 6 Trichlorophenol [C]	0	--	--	na	2 4E+01	--	--	na	2 4E+01	--	--	--		--	--	--	--			na	2 4E+01
2-(2 4 5 Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--		--	na	
Vinyl Chloride[C]	0	--	--	na	2 4E+01	--	--	na	2 4E+01	--	--	--	--	--		--	--			na	2 4E+01
Zinc	0	1 1E+02	1 1E+02	na	2 6E+04	1 1E+02	1 1E+02	na	2 6E+04	--	--	--	--	--	--	--	--	1 1E+02	1 1E+02	na	2 6E+04

Notes

1 All concentrations expressed as micrograms/liter (ug/l) unless noted otherwise
2 Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3 Metals measured as Dissolved unless specified otherwise
4 C indicates a carcinogenic parameter
5 Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information
Antidegradation WLAs are based upon a complete mix
6 Antideg Baseline = (0 25(WQC background conc) + background conc) for acute and chronic
= (0 1(WQC background conc) + background conc) for human health
7 WLAs established at the following stream flows 1Q10 for Acute 30Q10 for Chronic Ammonia 7Q10 for Other Chronic 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens To apply mixing ratios from a model set the stream flow equal to (mixing ratio 1) effluent flow equal to 1 and 100 % mix

Metal	Target Value (SSTV)
Antimony	6 4E+02
Arsenic	9 0E+01
Barium	na
Cadmium	6 2E-01
Chromium III	4 0E+01
Chromium VI	6 4E+00
Copper	4 8E+00
Iron	na
Lead	6 9E+00
Manganese	na
Mercury	4 6E-01
Nickel	1 1E+01
Selenium	3 0E+00
Silver	1 1E+00
Zinc	4 2E+01

Note do not use QL s lower than the minimum QL s provided in agency guidance

DMR QA/QC

Permit # VA0087718

Facility DOC - Coffeewood Correctional Center

TSS

Outfall	Rec'd	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Quantity Unit Lim	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	
001	10 Nov 2008	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	10 Dec 2008	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	08 Jan 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	09 Feb 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	09 Mar 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	09 Apr 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	06 May 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	09 Jun 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	08-Jul 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	07 Aug 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	
001	10 Sep 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7
001	07 Oct 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	09 Nov 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7
001	08 Dec 2009	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 2
001	08 Jan 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	09 Feb 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	08 Mar 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	09 Apr 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	06 May 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
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001	08-Jul 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 3
001	09 Aug 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
001	09 Sep 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7
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001	10 Nov 2010	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
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001	10-Jan 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 2
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001	10 Mar 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
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001	10 May 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 3
001	10-Jun 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 2
001	07-Jul 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 2
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001	08 Sep 2011	CBOD5	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 1
			<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	7 2

pH data for calculat

Attachment 8

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001	09 Jan 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	73
001	09 Feb 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	74
001	08 Mar 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	73
001	10 Apr 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	73
001	09 May 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	73
001	08-Jun 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	76
001	10-Jul 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	75
001	10 Aug 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	75
001	10 Sep 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	74
001	10 Oct 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	74
001	09 Nov 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	74
001	10 Dec 2012	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	73
001	10-Jan 2013	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	75
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001	07 Mar 2013	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	75
001	08 Apr 2013	CBOD5	<QL	76	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15	75
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001	08-Jul 2009	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	7	NL	7	NL	73
001	08-Jan 2010	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	11	NL	11	NL	75
001	08-Jul 2010	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	10	NL	10	NL	74
001	10-Jan 2011	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	8	NL	8	NL	74
001	07-Jul 2011	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	74
001	09-Jan 2012	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	72
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001	07-Jan 2013	COPPER TOTAL	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	73
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001	09 Feb 2009	PH	NULL	*********	NULL	*********	NULL	72	60	NULL	*********	76	90	76
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001	09 Apr 2009	PH	NULL	*********	NULL	*********	NULL	71	60	NULL	*********	74	90	74
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001	09-Jun 2009	PH	NULL	*********	NULL	*********	NULL	71	60	NULL	*********	74	90	74
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001	09 Apr 2010	PH	NULL	*********	NULL	*********	NULL	71	60	NULL	*********	75	90	75
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													90th	79
													10th	71
001	10 Nov 2008	TKN (N KJEL)	03	23	06	34	KG/D	NULL	*********	06	30	14	45	
001	10 Dec 2008	TKN (N KJEL)	07	23	20	34	KG/D	NULL	*********	16	30	41	45	

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001	10 Oct 2012	TKN (N KJEL)	0 2	2 3	0 3	3 4	KG/D	NULL	*********	0 7	3 0	0 9	4 5
001	09 Nov 2012	TKN (N KJEL)	0 1	2 3	0 2	3 4	KG/D	NULL	*********	0 1	3 0	0 6	4 5
001	10 Dec 2012	TKN (N KJEL)	0 1	2 3	0 2	3 4	KG/D	NULL	*********	0 3	3 0	0 6	4 5
001	10-Jan 2013	TKN (N KJEL)	0 2	2 3	0 3	3 4	KG/D	NULL	*********	0 8	3 0	1 0	4 5
001	08 Feb 2013	TKN (N KJEL)	0 1	2 3	0 1	3 4	KG/D	NULL	*********	0 2	3 0	0 5	4 5
001	07 Mar 2013	TKN (N KJEL)	0 5	2 3	0 6	3 4	KG/D	NULL	*********	1 5	3 0	1 8	4 5
001	08 Apr 2013	TKN (N KJEL)	0 4	2 3	0 6	3 4	KG/D	NULL	*********	1 2	3 0	1 6	4 5
001	10 Nov 2008	TSS	0 3	7 6	0 3	11	KG/D	NULL	*********	0 7	10	0 7	15
001	10 Dec 2008	TSS	0 3	7 6	0 5	11	KG/D	NULL	*********	0 8	10	1 5	15
001	08-Jan 2009	TSS	0 5	7 6	0 7	11	KG/D	NULL	*********	1 2	10	1 6	15
001	09 Feb 2009	TSS	0 8	7 6	1 1	11	KG/D	NULL	*********	1 7	10	2 2	15
001	09 Mar 2009	TSS	0 4	7 6	1 0	11	KG/D	NULL	*********	0 9	10	2 0	15
001	09 Apr 2009	TSS	1 0	7 6	1 3	11	KG/D	NULL	*********	2 1	10	2 7	15
001	06 May 2009	TSS	1 5	7 6	1 7	11	KG/D	NULL	*********	3 2	10	3 5	15
001	09-Jun 2009	TSS	1 1	7 6	1 6	11	KG/D	NULL	*********	2 3	10	3 4	15
001	08-Jul 2009	TSS	1 1	7 6	1 6	11	KG/D	NULL	*********	2 1	10	3 3	15
001	07 Aug 2009	TSS	0 7	7 6	0 8	11	KG/D	NULL	*********	1 4	10	1 7	15
001	10 Sep 2009	TSS	0 5	7 6	0 8	11	KG/D	NULL	*********	1 1	10	1 7	15
001	07 Oct 2009	TSS	0 1	7 6	<QL	11	KG/D	NULL	*********	0 1	10	<QL	15
001	09 Nov 2009	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 2	10	0 7	15
001	08 Dec 2009	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 5	10	1 0	15
001	08-Jan 2010	TSS	0 3	7 6	0 8	11	KG/D	NULL	*********	0 6	10	1 6	15
001	09 Feb 2010	TSS	0 1	7 6	0 1	11	KG/D	NULL	*********	0 1	10	0 3	15
001	08 Mar 2010	TSS	0 4	7 6	0 7	11	KG/D	NULL	*********	0 8	10	1 3	15
001	09 Apr 2010	TSS	0 8	7 6	1 1	11	KG/D	NULL	*********	1 5	10	2 4	15
001	06 May 2010	TSS	0 3	7 6	0 7	11	KG/D	NULL	*********	0 8	10	1 5	15
001	09-Jun 2010	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 3	10	0 8	15
001	08 Jul 2010	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	09 Aug 2010	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 3	10	0 4	15
001	09 Sep 2010	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	08 Oct 2010	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 1	10	0 5	15
001	10 Nov 2010	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	10 Dec 2010	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 3	10	0 6	15
001	10-Jan 2011	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 5	10	0 7	15
001	10 Feb 2011	TSS	0 4	7 6	0 7	11	KG/D	NULL	*********	0 9	10	1 7	15
001	10 Mar 2011	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	08 Apr 2011	TSS	0 1	7 6	<QL	11	KG/D	NULL	*********	0 1	10	<QL	15
001	10 May 2011	TSS	0 1	7 6	0 4	11	KG/D	NULL	*********	0 2	10	0 7	15
001	10-Jun 2011	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 3	10	1 0	15
001	07-Jul 2011	TSS	0 2	7 6	0 3	11	KG/D	NULL	*********	0 4	10	0 6	15
001	09 Aug 2011	TSS	0 1	7 6	0 4	11	KG/D	NULL	*********	0 3	10	0 8	15

001	08 Sep 2011	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	06 Oct 2011	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 2	10	0 4	15
001	10 Nov 2011	TSS	0 6	7 6	0 9	11	KG/D	NULL	*********	1 1	10	1 5	15
001	09 Dec 2011	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 5	10	0 7	15
001	09 Jan 2012	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 1	10	0 3	15
001	09 Feb 2012	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 2	10	0 4	15
001	08 Mar 2012	TSS	<QL	7 6	<QL	11	KG/D	NULL	*********	<QL	10	<QL	15
001	10 Apr 2012	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 2	10	0 6	15
001	09 May 2012	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 3	10	0 5	15
001	08 Jun 2012	TSS	0 1	7 6	0 2	11	KG/D	NULL	*********	0 2	10	0 3	15
001	10-Jul 2012	TSS	0 1	7 6	0 1	11	KG/D	NULL	*********	0 1	10	0 4	15
001	10 Aug 2012	TSS	0 2	7 6	0 4	11	KG/D	NULL	*********	0 4	10	0 9	15
001	10 Sep 2012	TSS	0 2	7 6	0 5	11	KG/D	NULL	*********	0 7	10	1 5	15
001	10 Oct 2012	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 4	10	0 7	15
001	09 Nov 2012	TSS	0 3	7 6	0 4	11	KG/D	NULL	*********	1 0	10	1 3	15
001	10 Dec 2012	TSS	0 1	7 6	0 3	11	KG/D	NULL	*********	0 4	10	0 7	15
001	10-Jan 2013	TSS	0 3	7 6	0 4	11	KG/D	NULL	*********	1 0	10	1 4	15
001	08 Feb 2013	TSS	0 1	7 6	<QL	11	KG/D	NULL	*********	0 2	10	<QL	15
001	07 Mar 2013	TSS	1 1	7 6	1 1	11	KG/D	NULL	*********	3 3	10	3 4	15
001	08 Apr 2013	TSS	0 6	7 6	0 7	11	KG/D	NULL	*********	1 8	10	2 2	15
001	08-Jan 2009	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	08-Jul 2009	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	08 Jan 2010	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	08 Jul 2010	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	10 Jan 2011	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	07-Jul 2011	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	09 Jan 2012	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	10 Jul 2012	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
001	07-Jan 2013	ZINC TOTAL RECOVERABLE	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL
002	10 Nov 2008	DIS SOLIDS TOTAL	NULL	*********	611 6	1300	KG/D	NULL	*********	NULL	*********	3150	5000
002	10 Dec 2008	DIS SOLIDS TOTAL	NULL	*********	516 1	1300	KG/D	NULL	*********	NULL	*********	3030	5000
002	08-Jan 2009	DIS SOLIDS TOTAL	NULL	*********	560 9	1300	KG/D	NULL	*********	NULL	*********	3120	5000
002	09 Feb 2009	DIS SOLIDS TOTAL	NULL	*********	388 6	1300	KG/D	NULL	*********	NULL	*********	3280	5000
002	09 Mar 2009	DIS SOLIDS TOTAL	NULL	*********	358 6	1300	KG/D	NULL	*********	NULL	*********	3730	5000
002	09 Apr 2009	DIS SOLIDS TOTAL	NULL	*********	622 3	1300	KG/D	NULL	*********	NULL	*********	3670	5000
002	06 May 2009	DIS SOLIDS TOTAL	NULL	*********	324 3	1300	KG/D	NULL	*********	NULL	*********	3600	5000
002	09-Jun 2009	DIS SOLIDS TOTAL	NULL	*********	340 3	1300	KG/D	NULL	*********	NULL	*********	3540	5000
002	08-Jul 2009	DIS SOLIDS TOTAL	NULL	*********	555 6	1300	KG/D	NULL	*********	NULL	*********	3580	5000
002	07 Aug 2009	DIS SOLIDS TOTAL	NULL	*********	381 2	1300	KG/D	NULL	*********	NULL	*********	3730	5000
002	10 Sep 2009	DIS SOLIDS TOTAL	NULL	*********	467 5	1300	KG/D	NULL	*********	NULL	*********	3570	5000
002	07-Oct 2009	DIS SOLIDS TOTAL	NULL	*********	623 5	1300	KG/D	NULL	*********	NULL	*********	3550	5000
002	09 Nov 2009	DIS SOLIDS TOTAL	NULL	*********	627 2	1300	KG/D	NULL	*********	NULL	*********	3610	5000
002	08 Dec 2009	DIS SOLIDS TOTAL	NULL	*********	424 3	1300	KG/D	NULL	*********	NULL	*********	3460	5000

002	08-Jan 2010	DIS SOLIDS TOTAL	NULL	*********	575 6	1300	KG/D	NULL	*********	NULL	*********	3480	5000
002	09 Feb 2010	DIS SOLIDS TOTAL	NULL	*********	659 3	1300	KG/D	NULL	*********	NULL	*********	3470	5000
002	08 Mar 2010	DIS SOLIDS TOTAL	NULL	*********	364 9	1300	KG/D	NULL	*********	NULL	*********	3110	5000
002	09 Apr 2010	DIS SOLIDS TOTAL	NULL	*********	360 2	1300	KG/D	NULL	*********	NULL	*********	3070	5000
002	06 May 2010	DIS SOLIDS TOTAL	NULL	*********	614 4	1300	KG/D	NULL	*********	NULL	*********	3340	5000
002	09-Jun 2010	DIS SOLIDS TOTAL	NULL	*********	649 8	1300	KG/D	NULL	*********	NULL	*********	3420	5000
002	08-Jul 2010	DIS SOLIDS TOTAL	NULL	*********	620 8	1300	KG/D	NULL	*********	NULL	*********	3410	5000
002	09 Aug 2010	DIS SOLIDS TOTAL	NULL	*********	696 8	1300	KG/D	NULL	*********	NULL	*********	3480	5000
002	09 Sep 2010	DIS SOLIDS TOTAL	NULL	*********	701 9	1300	KG/D	NULL	*********	NULL	*********	3580	5000
002	08 Oct 2010	DIS SOLIDS TOTAL	NULL	*********	734 1	1300	KG/D	NULL	*********	NULL	*********	3520	5000
002	10 Nov 2010	DIS SOLIDS TOTAL	NULL	*********	701 9	1300	KG/D	NULL	*********	NULL	*********	3580	5000
002	10 Dec 2010	DIS SOLIDS TOTAL	NULL	*********	439 8	1300	KG/D	NULL	*********	NULL	*********	3210	5000
002	10 Jan 2011	DIS SOLIDS TOTAL	NULL	*********	575 3	1300	KG/D	NULL	*********	NULL	*********	3200	5000
002	10 Feb 2011	DIS SOLIDS TOTAL	NULL	*********	731 8	1300	KG/D	NULL	*********	NULL	*********	3410	5000
002	10 Mar 2011	DIS SOLIDS TOTAL	NULL	*********	548 2	1300	KG/D	NULL	*********	NULL	*********	2980	5000
002	08 Apr 2011	DIS SOLIDS TOTAL	NULL	*********	455 1	1300	KG/D	NULL	*********	NULL	*********	2690	5000
002	10 May 2011	DIS SOLIDS TOTAL	NULL	*********	470 9	1300	KG/D	NULL	*********	NULL	*********	3840	5000
002	10 Jun 2011	DIS SOLIDS TOTAL	NULL	*********	498 3	1300	KG/D	NULL	*********	NULL	*********	2900	5000
002	07-Jul 2011	DIS SOLIDS TOTAL	NULL	*********	473 5	1300	KG/D	NULL	*********	NULL	*********	2830	5000
002	09 Aug 2011	DIS SOLIDS TOTAL	NULL	*********	545	1300	KG/D	NULL	*********	NULL	*********	3090	5000
002	08 Sep 2011	DIS SOLIDS TOTAL	NULL	*********	529 7	1300	KG/D	NULL	*********	NULL	*********	3490	5000
002	06 Oct 2011	DIS SOLIDS TOTAL	NULL	*********	484 8	1300	KG/D	NULL	*********	NULL	*********	3870	5000
002	10 Nov 2011	DIS SOLIDS TOTAL	NULL	*********	635 5	1300	KG/D	NULL	*********	NULL	*********	3020	5000
002	09 Dec 2011	DIS SOLIDS TOTAL	NULL	*********	325 7	1300	KG/D	NULL	*********	NULL	*********	3030	5000
002	09-Jan 2012	DIS SOLIDS TOTAL	NULL	*********	513 3	1300	KG/D	NULL	*********	NULL	*********	3340	5000
002	09 Feb 2012	DIS SOLIDS TOTAL	NULL	*********	295 3	1300	KG/D	NULL	*********	NULL	*********	3530	5000
002	08 Mar 2012	DIS SOLIDS TOTAL	NULL	*********	308 8	1300	KG/D	NULL	*********	NULL	*********	3330	5000
002	10 Apr 2012	DIS SOLIDS TOTAL	NULL	*********	287 3	1300	KG/D	NULL	*********	NULL	*********	3580	5000
002	09 May 2012	DIS SOLIDS TOTAL	NULL	*********	762 4	1300	KG/D	NULL	*********	NULL	*********	3420	5000
002	08-Jun 2012	DIS SOLIDS TOTAL	NULL	*********	672 9	1300	KG/D	NULL	*********	NULL	*********	3380	5000
002	10-Jul 2012	DIS SOLIDS TOTAL	NULL	*********	561 8	1300	KG/D	NULL	*********	NULL	*********	2822	5000
002	10 Aug 2012	DIS SOLIDS TOTAL	NULL	*********	610 5	1300	KG/D	NULL	*********	NULL	*********	3120	5000
002	10 Sep 2012	DIS SOLIDS TOTAL	NULL	*********	654 3	1300	KG/D	NULL	*********	NULL	*********	2910	5000
002	10 Oct 2012	DIS SOLIDS TOTAL	NULL	*********	712 5	1300	KG/D	NULL	*********	NULL	*********	3320	5000
002	09 Nov 2012	DIS SOLIDS TOTAL	NULL	*********	615 1	1300	KG/D	NULL	*********	NULL	*********	3400	5000
002	10 Dec 2012	DIS SOLIDS TOTAL	NULL	*********	633 4	1300	KG/D	NULL	*********	NULL	*********	3340	5000
002	10-Jan 2013	DIS SOLIDS TOTAL	NULL	*********	601 4	1300	KG/D	NULL	*********	NULL	*********	3140	5000
002	08 Feb 2013	DIS SOLIDS TOTAL	NULL	*********	490 1	1300	KG/D	NULL	*********	NULL	*********	3270	5000
002	07 Mar 2013	DIS SOLIDS TOTAL	NULL	*********	551 9	1300	KG/D	NULL	*********	NULL	*********	3000	5000
002	08 Apr 2013	DIS SOLIDS TOTAL	NULL	*********	535 4	1300	KG/D	NULL	*********	NULL	*********	3510	5000
002	10 Nov 2008	PH	NULL	*********	NULL	*********	NULL	7 5	6 0	NULL	*********	7 5	9 0
002	10 Dec 2008	PH	NULL	*********	NULL	*********	NULL	7 6	6 0	NULL	*********	7 6	9 0
002	08-Jan 2009	PH	NULL	*********	NULL	*********	NULL	7 6	6 0	NULL	*********	7 6	9 0

002	09 Feb 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Mar 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Apr 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	06 May 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09-Jun 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08 Jul 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	07 Aug 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	10 Sep 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	07 Oct 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Nov 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08 Dec 2009	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08-Jan 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Feb 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08 Mar 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Apr 2010	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	06 May 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09-Jun 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08-Jul 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Aug 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Sep 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	08 Oct 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	10 Nov 2010	PH	NULL	*********	NULL	*********	NULL	75	60	NULL	*********	75	90
002	10 Dec 2010	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	10-Jan 2011	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	10 Feb 2011	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	10 Mar 2011	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	08 Apr 2011	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	10 May 2011	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	10-Jun 2011	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	07-Jul 2011	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 Aug 2011	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	08 Sep 2011	PH	NULL	*********	NULL	*********	NULL	78	60	NULL	*********	78	90
002	06 Oct 2011	PH	NULL	*********	NULL	*********	NULL	78	60	NULL	*********	78	90
002	10 Nov 2011	PH	NULL	*********	NULL	*********	NULL	78	60	NULL	*********	78	90
002	09 Dec 2011	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	09-Jan 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	09 Feb 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	08 Mar 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	10 Apr 2012	PH	NULL	*********	NULL	*********	NULL	76	60	NULL	*********	76	90
002	09 May 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	08-Jun 2012	PH	NULL	*********	NULL	*********	NULL	78	60	NULL	*********	78	90
002	10-Jul 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90
002	10 Aug 2012	PH	NULL	*********	NULL	*********	NULL	77	60	NULL	*********	77	90

002	10 Sep 2012	PH	NULL	*********	NULL	*********	NULL	7 8	6 0	NULL	*********	7 8	9 0
002	10 Oct 2012	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	09 Nov 2012	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	10 Dec 2012	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	10-Jan 2013	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	08 Feb 2013	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	07 Mar 2013	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
002	08 Apr 2013	PH	NULL	*********	NULL	*********	NULL	7 7	6 0	NULL	*********	7 7	9 0
											90th	**7 7**	
											10th	**7 6**	
002	08 Dec 2009	TOXICITY FINAL CHRONIC	NULL	*********	NULL	*********	NULL	NULL	*********	NULL	*********	>7 14	NL
002	10-Jan 2011	TOXICITY FINAL CHRONIC	NULL	*********	NULL	*********	NULL	NULL	*********	NULL	*********	1 79	NL
002	09-Jan 2012	TOXICITY FINAL CHRONIC	NULL	*********	NULL	*********	NULL	NULL	*********	NULL	*********	>2 08	NL
002	07-Jan 2013	TOXICITY FINAL CHRONIC	NULL	*********	NULL	*********	NULL	NULL	*********	NULL	*********	1 44	NL

4/23/2013 12 51 56 PM

Facility = Coffeewood Correctional Center 001
Chemical = Copper
Chronic averaging period = 4
WLAa = 12
WLAc = 8 1
Q L = 4 8
samples/mo = 1
samples/wk = 1

Summary of Statistics

observations = 9
Expected Value = 6 08660
Variance = 13 3368
C V = 0 6
97th percentile daily values = 14 8112
97th percentile 4 day average = 10 1268
97th percentile 30 day average= 7 34076
< Q L = 4
Model used = BPJ Assumptions, Type 1 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 11 8468557508312
Average Weekly limit = 11 8468557508312
Average Monthly LImit = 11 8468557508312

The data are

10
7
11
10
8
0
0
0
0

Attachment 9

4/23/2013 12 52 40 PM

Facility = Coffeewood Correctional Center 001
Chemical = Zinc
Chronic averaging period = 4
WLAa = 110
WLAc = 110
Q L = 42
samples/mo = 1
samples/wk = 1

Summary of Statistics

observations = 9
Expected Value = 6 08660
Variance = 13 3368
C V = 0 6
97th percentile daily values = 14 8112
97th percentile 4 day average = 10 1268
97th percentile 30 day average= 7 34076
< Q L = 9
Model used = BPJ Assumptions, Type 1 data

No Limit is required for this material

The data are

0
0
0
0
0
0
0
0
0

****

REGIONAL MODELING SYSTEM VERSION 3 2

DATA FILE SUMMARY

****

THE NAME OF THE DATA FILE IS MSDIV MOD

THE STREAM NAME IS Cabin Branch
THE RIVER BASIN IS Rappahannock River
THE SECTION NUMBER IS 4
THE CLASSIFICATION IS III

STANDARDS VIOLATED (Y/N) = N
STANDARDS APPROPRIATE (Y/N) = Y

DISCHARGE WITHIN 3 MILES (Y/N) = N

There is a small sewage discharge (500 gpd) approximately 1500 feet upstream of the discharge This is < 0 58 of the flow volume of the proposed discharge and was not considered further A minor industrial discharge also enters Cabin Branch upstream but does not contribute significant BOD and TKN loads

THE DISCHARGE BEING MODELED IS Medium Security Dormitory IV

PROPOSED LIMITS ARE
FLOW = 2 MGD
BOD5 = 10 MG/L
TKN = 6 MG/L
D O = 6 MG/L

THE NUMBER OF SEGMENTS TO BE MODELED = 3

7Q10 WILL BE CALCULATED BY DRAINAGE AREA COMPARISON
THE GAUGE NAME IS Cedar Run near Culpeper (#01667650)
GAUGE DRAINAGE AREA = 33 2 SQ MI
GAUGE 7Q10 = 0 MGD
DRAINAGE AREA AT DISCHARGE = 4 54 SQ MI

STREAM A DRY DITCH AT DISCHARGE (Y/N) = N
ANTIDEGRADATION APPLIES (Y/N) = N

ALLOCATION DESIGN TEMPERATURE = 25 °C

Anti degradation does not apply to the first two stream segments modeled since the 7Q10 is zero Anti-degradation does apply to the last segment, the Rapidan River Water quality standards are applicable within each stream segment modeled

Attachment 10

SEGMENT INFORMATION

SEGMENT # 1 ###### CABIN BRANCH

SEGMENT ENDS BECAUSE A TRIBUTARY ENTERS AT END

SEGMENT LENGTH = 1 8 MI

SEGMENT WIDTH = 2 5 FT
SEGMENT DEPTH = 5 FT
SEGMENT VELOCITY = 2 FT/SEC

DRAINAGE AREA AT SEGMENT START = 4 54 SQ MI
DRAINAGE AREA AT SEGMENT END = 5 76 SQ MI

ELEVATION AT UPSTREAM END = 300 FT
ELEVATION AT DOWNSTREAM END = 280 FT

THE CROSS SECTION IS RECTANGULAR
THE CHANNEL IS MOSTLY STRAIGHT

POOLS AND RIFFLES (Y/N) = Y
THE SEGMENT LENGTH IS 10 % POOLS
POOL DEPTH = 1 FT
THE SEGMENT LENGTH IS 90 % RIFFLES
RIFFLE DEPTH = 4 FT

THE BOTTOM TYPE = SMALL ROCK
SLUDGE DEPOSITS = NONE
AQUATIC PLANTS = LIGHT
ALGAE OBSERVED = NONE
WATER COLORED GREEN (Y/N) = N

TRIBUTARY DATA
FLOW = 0 MGD
BOD5 = 2 MG/L
TKN = 0 MG/L
D O = 7 4255 MG/L

Another small sewage plant (≤ 1000 gpd) discharges into Cedar Run above the confluence with Cabin Branch, however it is > 1 mile upstream of the confluence and is not expected to contribute significant flow or pollutant load in the section of Cedar Run below Cabin Branch

SEGMENT INFORMATION

####### SEGMENT # 2 ####### CEDAR RUN

SEGMENT ENDS BECAUSE A TRIBUTARY ENTERS AT END

SEGMENT LENGTH = 2 1 MI

SEGMENT WIDTH = 4 FT
SEGMENT DEPTH = 3 FT
SEGMENT VELOCITY = 3 FT/SEC

DRAINAGE AREA AT SEGMENT START = 25.76 SQ MI
DRAINAGE AREA AT SEGMENT END = 28 16 SQ MI

ELEVATION AT UPSTREAM END = 280 FT
ELEVATION AT DOWNSTREAM END = 240 FT

THE CROSS SECTION IS RECTANGULAR
THE CHANNEL IS MODERATELY MEANDERING

POOLS AND RIFFLES (Y/N) = Y
THE SEGMENT LENGTH IS 10 % POOLS
POOL DEPTH = 1 FT
THE SEGMENT LENGTH IS 90 % RIFFLES
RIFFLE DEPTH = 2 FT

THE BOTTOM TYPE = SMALL ROCK
SLUDGE DEPOSITS = NONE
AQUATIC PLANTS = FEW
ALGAE OBSERVED = VISIBLE ONLY ON EDGES
WATER COLORED GREEN (Y/N) = N

TRIBUTARY DATA
FLOW = 12 9 MGD
BOD5 = 2 MG/L
TKN = 0 MG/L
D O = 7 4334 MG/L

SEGMENT INFORMATION

####### SEGMENT # 3 ####### RAPIDAN RIVER

SEGMENT ENDS BECAUSE THE MODEL ENDS

SEGMENT LENGTH = 3 MI

SEGMENT WIDTH = 75 FT
SEGMENT DEPTH = 8 FT
SEGMENT VELOCITY = 4 FT/SEC

DRAINAGE AREA AT SEGMENT START = 500 SQ MI
DRAINAGE AREA AT SEGMENT END = 507 SQ MI

ELEVATION AT UPSTREAM END = 240 FT
ELEVATION AT DOWNSTREAM END = 235 FT

THE CROSS SECTION IS RECTANGULAR
THE CHANNEL IS MOSTLY STRAIGHT

POOLS AND RIFFLES (Y/N) = N

THE BOTTOM TYPE = SILT
SLUDGE DEPOSITS = NONE
AQUATIC PLANTS = NONE
ALGAE OBSERVED = NONE
WATER COLORED GREEN (Y/N) = N

****

REGIONAL MODELING SYSTEM Ver 3 2 (DWRM - 9/90)
09-16-1992 16 14 41

********** REGIONAL MODELING SYSTEM VERSION 3.2 **********

MODEL SIMULATION FOR THE Medium Security Dormitory IV DISCHARGE

TO Cabin Branch

THE SIMULATION STARTS AT THE Medium Security Dormitory IV DISCHARGE

********** PROPOSED PERMIT LIMITS **********

FLOW = 2 MGD cBOD5 = 10 Mg/L TKN = 6 Mg/L D O = 6 Mg/L

**** THE MAXIMUM CHLORINE ALLOWABLE IN THE DISCHARGE IS 0 011 Mg/L ****

THE SECTION BEING MODELED IS BROKEN INTO 3 SEGMENTS
RESULTS WILL BE GIVEN AT 0 1 MILE INTERVALS

********** BACKGROUND CONDITIONS **********

THE 7Q10 STREAM FLOW AT THE DISCHARGE IS 0 00000 MGD
THE DISSOLVED OXYGEN OF THE STREAM IS 7 425 Mg/L
THE BACKGROUND cBODu OF THE STREAM IS 5 Mg/L
THE BACKGROUND nBOD OF THE STREAM IS 0 Mg/L

********** MODEL PARAMETERS **********

SEG	LEN Mi	VEL F/S	K2 1/D	K1 1/D	KN 1/D	BENTHIC Mg/L	ELEV Ft	TEMP °C	DO-SAT Mg/L
1	1 80	0 223	6 667	0 700	0 250	0 000	290 00	25 00	8 251
2	2 10	0 290	11 429	1 200	0 450	0 000	260 00	25 00	8 259
3	3 00	0 360	1 000	0 900	0 250	0 000	237 50	25 00	8 266

(The K Rates shown are at 20°C the model corrects them for temperature)

TOTAL STREAMFLOW = 0 2000 MGD
(Including Discharge)

DISTANCE FROM HEAD OF SEGMENT (MI)	TOTAL DISTANCE FROM MODEL BEGINNING (MI)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0 000	0 000	6 000	25 000	12 990
0 100	0 100	5 762	24 403	12 860
0 200	0 200	5 582	23 820	12 731
0 300	0 300	5 450	23 251	12 603
0 400	0 400	5 355	22 695	12 476
0 500	0 500	5 292	22 153	12 351
0 600	0 600	5 253	21 624	12 227
0 700	0 700	5 233	21 107	12 104
0 800	0 800	5 230	20 603	11 983
0 900	0 900	5 239	20 110	11 863
1 000	1 000	5 259	19 630	11 743
1 100	1 100	5 286	19 161	11 626
1 200	1 200	5 319	18 703	11 509
1 300	1 300	5 357	18 256	11 393
1 400	1 400	5 399	17 820	11 279
1 500	1 500	5 443	17 394	11 166
1 600	1 600	5 489	16 979	11 054
1 700	1 700	5 537	16 573	10 943
1 800	1 800	5 585	16 177	10 833

FOR THE TRIBUTARY AT THE END OF SEGMENT 1
FLOW = 0 MGD cBOD5 = 2 Mg/L TKN = 0 Mg/L D O = 7 4255 Mg/L

FLOW FROM INCREMENTAL DRAINAGE AREA = 0 0000 MGD

********** RESPONSE FOR SEGMEI 2 **********

TOTAL STREAMFLOW = 0 2000 MGD
(Including Discharge, Tributaries and Incremental D R Flow)

DISTANCE FROM HEAD OF SEGMENT (MI)	TOTAL DISTANCE FROM MODEL BEGINNING (MI)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0 000	1 800	5 585	16 177	10 833
0 100	1 900	5 646	15 671	10 683
0 200	2 000	5 707	15 180	10 536
0 300	2 100	5 770	14 705	10 390
0 400	2 200	5 832	14 245	10 246
0 500	2 300	5 894	13 799	10 104
0 600	2 400	5 955	13 367	9 965
0 700	2 500	6 015	12 949	9 827
0 800	2 600	6 074	12 543	9 691
0 900	2 700	6 132	12 151	9 557
1 000	2 800	6 188	11 771	9 425
1 100	2 900	6 243	11 402	9 295
1 200	3 000	6 297	11 045	9 166
1 300	3 100	6 349	10 700	9 039
1 400	3 200	6 400	10 365	8 914
1 500	3 300	6 450	10 040	8.791
1 600	3 400	6 498	9 726	8 669
1 700	3 500	6 544	9 422	8 550
1 800	3 600	6 590	9 127	8 431
1 900	3 700	6 634	8 841	8 315
2 000	3 800	6 677	8 564	8 200
2 100	3 900	6 719	8 297	8 086

FOR THE TRIBUTARY AT THE END OF SEGMENT 2
FLOW = 12 9 MGD cBOD5 = 2 Mg/L TKN = 0 Mg/L D O = 7 4334 Mg/L

FLOW FROM INCREMENTAL DRAINAGE AREA = 0 0000 MGD

********** RESPONSE FOR SEGMEN 5 **********

TOTAL STREAMFLOW = 13 1000 MGD
(Including Discharge, Tributaries and Incremental D A Flow)

DISTANCE FROM HEAD OF SEGMENT (MI)	TOTAL DISTANCE FROM MODEL BEGINNING (MI)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0 000	3 900	7 423	5 050	0 123
0 100	4 000	7 343	5 000	0 123
0 200	4 100	7 359	5 000	0 122
0 300	4 200	7 376	5 000	0 121
0 400	4 300	7 392	5 000	0 120
0 500	4 400	7 407	5 000	0 120
0 600	4 500	7 423	5 000	0 119
0 700	4 600	7 438	5 000	0 118
0 800	4 700	7 439	5 000	0 117
0 900	4 800	7 439	5 000	0 117
1 000	4 900	7 439	5 000	0 116
1 100	5 000	7 439	5 000	0 115
1 200	5 100	7 439	5 000	0 115
1 300	5 200	7 439	5 000	0 114
1 400	5 300	7 439	5 000	0 113
1 500	5 400	7 439	5 000	0 113
1 600	5 500	7 439	5 000	0 112
1 700	5 600	7 439	5 000	0 111
1 800	5 700	7 439	5 000	0 111
1 900	5 800	7 439	5 000	0 110
2 000	5 900	7 439	5 000	0 109
2 100	6 000	7 439	5 000	0 108
2 200	6 100	7 439	5 000	0 108
2 300	6 200	7 439	5 000	0 107
2 400	6 300	7 439	5 000	0 106
2 500	6 400	7 439	5 000	0 106
2 600	6 500	7 439	5 000	0 105
2 700	6 600	7 439	5 000	0 104
2 800	6 700	7 439	5 000	0 104
2 900	6 800	7 439	5 000	0 103
3 000	6 900	7 439	5 000	0 102

$\Delta DO = 0.096$ mg/l

< 0.20 mg/l

Antidegradation is met.

****

REGIONAL MODELING SYSTEM Ver 3 2 (OWRM - 9/90)
09-16-1992 16 15 49

DATA FILE = MSDIV MOD

NUTRIENTS AND TOXIC SUBSTANCES IN WATER FOR LIVESTOCK AND POULTRY

A Report of the
SUBCOMMITTEE ON NUTRIENT AND TOXIC ELEMENTS IN WATER

Committee on Animal Nutrition
Board on Agriculture and Renewable Resources
Commission on Natural Resources
National Research Council

National Academy of Sciences
WASHINGTON, D.C. 1974

Attachment 11

not be as available as those in solution to animals drinking the water.

Determinations of the concentration values of most mineral elements in surface waters of the United States during the period 1957–1969 were accumulated in STORET (Systems for Technical Data, 1971) These data include values for the mean, maximum, and minimum concentrations of the nutrient elements (see Table 8) The values obviously include many samples from calcium–magnesium sulfate–chloride and sodium–potassium sulfate–chloride types of water, as well as the more common calcium–magnesium carbonate–bicarbonate types. For this reason, the mean values for sodium, chloride, and sulfate appear somewhat high

Table 9 gives the estimated average intake of drinking water in liters per day for selected categories of various farm animals Under the various elements are given three columns of values for illustrative purposes. One column expresses the National Research Council (1966, 1968a,b, 1970a, 1971a,b) daily requirement, the second column gives the approximate mean percentage of that requirement contributed in the water intake each day, and the third column lists the maximum percentage that the daily water intake would supply if the greatest observed concentration of the nutrient were present No values are presented in Table 9 for percentages of the NRC requirement provided in water when minimum concentrations of nutrients were present, as in nearly all cases they were less than 1 percent.

TABLE 8 Composition of United States Surface Water, 1957–1969 (Collected at 140 Stations)

Substance	Mean	Maximum	Minimum	Number of Determinations
Phosphorus (mg/liter)	0 087	5 0	0.001	1,729
Calcium (mg/liter)	57 1	173 0	11 0	510
Magnesium (mg/liter)	14 0	157 0	8.5	1,143
Sodium (mg/liter)	55 1	7 400 0	0.2	1,801
Potassium (mg/liter)	4.3	370 0	0.06	1,804
Chloride (mg/liter)	478 0	19,000 0	0.0	37,355
Sulfate (mg/liter)	135 9	3,383 0	0 0	30,229
Copper (μg/liter)	13 8	280 0	0.8	1,871
Iron (μg/liter)	43 9	4,600 0	0.10	1,836
Manganese (μg/liter)	29.4	3,230 0	0 20	1,818
Zinc (μg/liter)	51 8	1,183 0	1 0	1,883
Selenium (μg/liter)	0 016	1 0	0 01	234
Iodine[a] (μg/liter)	46 1	336 0	4 0	16
Cobalt[b] (μg/liter)	1.0	5 0	0	720

[a]Dantzman and Breland 1969
[b]Durum et al., 1971

TABLE 9 Mean and Maximum Percentages of Daily Requirements of Nutrient Elements in the Drinking Water of Livestock and Poultry

Animal	Water Intake[a] (liters)	Req. Daily[b] (g)	Mean (%)	Max. (%)	Req. Daily (g)	Mean (%)	Max. (%)	Req. Daily (g)	Mean (%)	Max. (%)

r) Magnesium salts had
cium chloride decreased
',775 mg/liter) Sodium
oncentrations up to
10,650 mg/liter of sodium
, 6,000 mg/liter of mag
chloride caused growth
st level of any salt during
erved among some rats

.tock

in experimental results
.stock This variation indi-
of factors in evaluating
he kind, age, and sex of
tating, the intensity of
,onditions, type of diet
nount of minerals in the
as to other sources of
een adapted to the water
e given in any particular
, but there seems little
he single most reliable
uated for livestock use

nmend the use of highly
e, drinking water should
many cases where circum-
all that is readily available,
vestock producers
isted above should be given
ng points should be taken

nt of more than 3,000
be considered Alkalinities
ct from the suitability of
an carbonates, which in

2 If animals are offered two sources of water, one highly saline and the other not, they will not drink the highly saline water

3 Animals can consume water of very high salinity for a few days without being harmed if they are then given water of low soluble salt content

4. As the soluble salts content of water increases, intake usually increases, except for water of extremely high saline content that the animals refuse to drink.

5 Abrupt change from water of low salinity to that of high salinity will probably cause more problems than gradual change

6 Depressed water intake is very likely to be accompanied by depressed feed intake Thus, animals being fed for a high rate of gain or

TABLE 10 A Guide to the Use of Saline Waters for Livestock and Poultry

Total Soluble Salts Content of Waters (mg/liter)	Comment
Less than 1 000	These waters have a relatively low level of salinity and should present no serious burden to any class of livestock or poultry
1,000–2,999	These waters should be satisfactory for all classes of livestock and poultry They may cause temporary and mild diarrhea in livestock not accustomed to them or watery droppings in poultry (especially at the higher levels), but should not affect their health or performance
3,000–4,999	These waters should be satisfactory for livestock, although they might very possibly cause temporary diarrhea or be refused at first by animals not accustomed to them They are poor waters for poultry, often causing watery feces and (at the higher levels of salinity) increased mortality and decreased growth, especially in turkeys.
5,000–6,999	These waters can be used with reasonable safety for dairy and beef cattle, sheep, swine, and horses. It may be well to avoid the use of those approaching the higher levels for pregnant or lactating animals They are not acceptable waters for poultry, almost always causing some type of problem, especially near the upper limit, where reduced growth and production or increased mortality will probably occur
7,000–10,000	These waters are unfit for poultry and probably for swine. Considerable risk may exist in using them for pregnant or lactating cows, horses, sheep, the young of these species or for any animals subjected to heavy heat stress or water loss In general, their use should be avoided, although older ruminants, horses, and even poultry and swine may subsist on them for long periods of time under conditions of low stress
More than 10,000	The risks with these highly saline waters are so great that they cannot be recommended for use under any conditions.

it maximum levels. Approxi
of iron for beef and dairy
an concentrations compared
am concentrations.
water would provide 1-2
ry cattle and sheep and less
ntrations, 12 51 percent of
d 3 6 percent of the require-
e present Copper at average
he daily requirements of the
centrations 9-33 percent
nsumption At the mean
ent of the daily requirements
would be supplied, at maxi-
mese at average concentra-
ent of the daily dietary
ss than 1 percent of those
-6 times the requirements
hose of swine, and 11 per-
concentrations provides
irements of beef and dairy
levels would supply ap-
nts for these species Due
vater in the United States,
e purposes. Water in Florida,
odine present for meeting

vater of livestock and poultry
rowth, reproduction, lon-
roducts when data were
cts of most toxicants on
ted, data on various experi-
ilable A number of ele-
um, manganese, molybde-
ns when in the drinking
effects on production or
at which these elements
various species of animals
ium were discussed rather
, as well as to their repu-
bstances in drinking water
rm to livestock and poultry
cadmium, are more haz-

ardous to livestock and poultry, especially due to build up in their tissues and products at levels undesirable to persons that consume them

Effects of various salts at high concentrations in water were discussed in regard to six species of farm animals Water that contains less than 1,000 mg/liter of total dissolved salts should present no serious problems to any class of livestock or poultry Water that contains 1,000–2,999 mg/liter should be satisfactory for all species of livestock and poultry in regard to performance, though some mild and temporary diarrhea may occur When the water contains 3,000–4,999 mg/liter, it is of poor quality for poultry and at the higher levels may cause increased mortality and decreased growth However, livestock should find this range of salinity satisfactory, especially when they become accustomed to it Water in the range of 5,000–6,999 mg/liter can be used with reasonable safety for beef and dairy cattle, sheep, swine, and horses, although it is best to avoid higher levels for pregnant and lactating animals Salinity in this range is not acceptable to poultry In the range of 7,000–10,000 mg/liter of saline salts, the waters are unfit for poultry and probably for swine They are a source of risk for pregnant and lactating cows, sheep, and horses, as well as for the young of these species and those subjected to heat stress Waters that contain more than 10,000 mg/liter of saline salts involve sufficient risk that they probably should not be used

Toxic blue-green algae were pointed out as a worldwide problem in drinking water for livestock To date only one toxin has been reported as isolated and identified It is a cyclic polypeptide containing 10 amino acid residues, one of which is the unnatural amino acid D-serine The sudden decomposition of algal blooms often precedes mass mortality of fish and these decompositions have been associated with livestock poisonings Predeath symptoms due to algal poison have not been well observed and postmortem examination is apparently of no help in diagnosis In view of the many unknowns relating to toxic algae blooms, the use of drinking water with heavy growths should best be avoided

Radionuclides occur in water from both natural and human sources In general, the radioactivity of drinking water for livestock and poultry should be of no greater level than that recommended for human consumption by the U S Public Health Service

Limited information on the effects of pesticides in water on economic animals and their products was presented and their potential hazards pointed out Recommendations are given in Table 13 on limits of concentration of some potential toxic substances in drinking water for livestock and poultry

BIOMONITORING RESULTS

Coffeewood Correctional Center – Culpeper (VA0087718)

Table 1
Summary of Test Results – Outfall 002

TEST DATE	TEST TYPE/ORGANISM	NOEC %	TU	% SURV	IC_{25}	LC_{50}	LAB	REMARKS
2/29/00	Chronic *C dubia*	**25 S** **12 5 R**	**8**	20			CBI	
6/13/00	Chronic *C dubia*	**28 SR**	**3 57**	10			CBI	
9/26/00	Chronic *C dubia*	**50 S** **12 5 R**	**8**	10			CBI	
12/12/00	Chronic *C dubia*	**56 S** **28 R**	**3 57**	20	32	67	CBI	
3/13/01	Chronic *C dubia*	**78 S** **28 R**	**3 57**	20	37	>100	CBI	
6/12/01	Chronic *C dubia*	**28 SR**	**3 57**	0	36 3	>100	CBI	
09/18/01	Chronic *C dubia*	**78 S** **28 R**	**3 57**	30	33 9	>100	CBI	
12/18/01	Chronic *C dubia*	**28 S** **14 R**	**7 14**	0	29 4	>100	CBI	Hardness = 3140 mg/L
3/19/02	Chronic *C dubia*	100 S **28 R**	**3 57**	80	39 6	>100	CBI	
6/18/02	Chronic *C dubia*	100 S 56 R	1 79	80	54 9	>100	CBI	Hardness = 2976 mg/L
7/15/03	Chronic *C dubia*	100 S 56 R	1 79	90	64 2	>100	CBI	Hardness = 3597 mg/L
Permit reissued 6 August 2003								
7/13/04	Chronic *C dubia*	**78 S** **14 R**	**7 14**	50	20 3	>100	CBI	Hardness = 2433 mg/L
7/12/05	Chronic *C dubia*	**28 S** **14 R**	**7 14**	10	21 5	>100	CBI	Hardness = 3310 mg/L
7/24/07	Chronic *C dubia*	**56 S** **14 R**	**7 14**	0	37 3	>100	CBI	
08/19/08	Chronic *C dubia*	100 S 78 R	1 28	60	43 3	>100	CBI	Hardness = 2173 mg/L
Permit reissued 16 September 2008								
10/27/09	Chronic *C dubia*	100 S <14 R	> 7 14	100	24 2	>100	CBI	Hardness = 1903 mg/L
11/30/10	Chronic *C dubia*	100 S 56 R	1 79	90	63 7	>100	CBI	Hardness = 1760 mg/L
11/29/11	Chronic *C dubia*	100 S <48 R	>2 08	90	49 4	>100	CBI	Hardness = 1780 mg/L
11/13/12	Chronic *C dubia*	100 S 69 R	1 44	90	74 6	>100	CBI	Hardness = 2027 mg/L

FOOTNOTES

A **Boldfaced** NOEC or WET value indicates that the test results failed to meet the permit WET limit
LC_{50} at 48 hours

ABBREVIATIONS

% SURV – Percent survival in 100% effluent
R – Reproduction S – Survival
CBI – Coastal Bioanalysts Inc

Attachment 12

Public Notice – Environmental Permit

PURPOSE OF NOTICE To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated and industrial wastewater into a water body in Culpeper County Virginia

PUBLIC COMMENT PERIOD June 22 2013 to July 22 2013

PERMIT NAME Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ under the authority of the State Water Control Board

APPLICANT NAME ADDRESS AND PERMIT NUMBER Virginia Department of Corrections
12352 Coffeewood Drive Mitchells VA 22729
VA0087718

PROJECT DESCRIPTION The Virginia Department of Corrections has applied for a reissuance of a permit for the public Coffeewood Correctional Center The applicant proposes to release treated sewage wastewaters from correctional center and industrial wastewaters at a rate of 0 2 and 0 07 million gallons per day respectively into a water body Sludge from the treatment process will be disposed by landfill The facility proposes to release the treated sewage and industrial wastewaters in the Cabin Branch in Culpeper County in the Rappahannock watershed A watershed is the land area drained by a river and its incoming streams The permit will limit the following pollutants to amounts that protect water quality pH cBOD total suspended solids dissolved oxygen total kjeldahl nitrogen E coli copper zinc total dissolved solids and whole effluent toxicity

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING DEQ accepts comments and requests for public hearing by hand-delivery e-mail fax or postal mail All comments and requests must be in writing and be received by DEQ during the comment period Submittals must include the names mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester A request for public hearing must also include 1) The reason why a public hearing is requested 2) A brief informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester including how and to what extent such interest would be directly and adversely affected by the permit 3) Specific references where possible to terms and conditions of the permit with suggested revisions A public hearing may be held including another comment period if public response is significant based on individual requests for a public hearing and there are substantial disputed issues relevant to the permit

CONTACT FOR PUBLIC COMMENTS DOCUMENT REQUESTS AND ADDITIONAL INFORMATION The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment or may request electronic copies of the draft permit and fact sheet

Name Douglas Frasier
Address DEQ-Northern Regional Office 13901 Crown Court Woodbridge VA 22193
Phone (703) 583-3873 Email Douglas Frasier@deq virginia gov Fax (703) 583-3821

Attachment 13

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W Tayloe Murphy Jr
Secretary of Natural Resources

Northern Virginia Regional Office
13901 Crown Court
Woodbridge VA 22193 1453
(703) 583 3800 *fax* (703) 583 3801
www deq state va us

Robert G Burnley
Director

Gregory L Clayton
Regional Director

AMENDMENT TO
EXECUTIVE COMPLIANCE AGREEMENT

DEPARTMENT OF CORRECTIONS
COFFEEWOOD CORRECTIONAL CENTER
For
COFFEEWOOD WATER & SEWAGE TREATMENT PLANT
(VPDES Permit No VA0087718)

This is an amendment to the Executive Compliance Agreement ('Agreement") entered into under the authority of Va Code § 62 1-14 and 10 1-1185 by the Department of Environmental Quality ("DEQ") and the Department of Corrections (DOC") Coffeewood Correctional Center ("Coffeewood") on February 2 2001 regarding the Coffeewood water treatment and sewage treatment plant for the purpose of revising certain provisions of the Agreement

The Agreement provides a construction schedule for Coffeewood to combine discharges from water treatment outfall 002 and sewage treatment outfall 001 into one outfall and to locate that outfall on the Rapidan River where the River's flow provides sufficient dilution for the discharge to meet the Permit s whole effluent toxicity limit (WET) and effluent limits for copper and zinc The construction schedule requires that Coffeewood complete construction of the new outfall by August 31 2002 but completion is contingent upon Coffeewood acquiring the necessary easements to gain access to the Rapidan River

In a letter dated October 15 2001 Coffeewood explained that the DOC is unable to acquire the necessary easements In follow-up correspondence dated March 22 2002 Coffeewood requested that the Agreement be amended to extend the construction schedule so that Coffeewood could develop and implement an alternative plan and schedule for achieving compliance with final Permit effluent limits

To remedy these matters the Department of Corrections Coffeewood Correctional

Center and DEQ agree to the amended schedule of action in Appendix A and to Coffeewood's compliance with the interim limits provided in Appendices B and C Both DEQ and Coffeewood understand and agree that this amended Agreement does not alter, modify or amend any other provisions of the Agreement and the unmodified provisions of the Agreement remain in effect by their own terms

This amended Agreement shall become effective upon the date of its execution by the Director of the Department of Environmental Quality or his designee The Department of Corrections, Coffeewood Correctional Center agrees to be bound by any compliance dates in this amended Agreement which may predate its effective date

5-31-02

Ron Angelone Director
Department of Corrections

Date

19 June 02

Robert G Burnley, Director
Department of Environmental Quality

Date

APPENDIX A
SCHEDULE OF COMPLIANCE

The Department of Corrections Coffeewood Correctional Center shall

1 By July 1, 2002, submit for review a preliminary engineering report ("PER") to the DEQ Northern Virginia Regional Office ("NVRO") and to the Virginia Department of Health ('VDH") addressing alternatives for achieving compliance with final Permit effluent limits and recommending a preferred alternative and

2 By November 1 2002 submit to DEQ NVRO for review and approval a plan and schedule for implementing the alternative chosen by Coffeewood for achieving compliance with final Permit effluent limits If the cost of the alternative chosen by Coffeewood exceeds the amount budgeted for the project, the schedule submitted pursuant to item two may provide for time needed to request additional funding from the Virginia General Assembly Upon approval, the plan and schedule shall become a part of and enforceable under this Agreement

APPENDIX C

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

COFFEEWOOD WATER & WASTEWATER PLANT

During the period beginning with the effective date of this amended ECA and lasting until Coffeewood complies with the items in Appendix A of this amended ECA, Coffeewood shall monitor and limit the discharge from outfall 002 in accordance with the VPDES Permit No VA0087718, except as specified below These interim limits shall retroactively apply, if applicable, as of the first day of the month in which this amended ECA becomes effective These requirements shall be construed in light of the Board's Permit Regulation.

PARAMETER	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Chronic Whole Effluent Toxicity Limit (Tuc)	NA	NA	NA	NA	N/A	N/L	1/yr	5G/8 HC

N/A = Not Applicable

1/yr = Once per year

N/L = No Limit

5G/8 HC = An eight hour composite sample consisting of a minimum of five grab samples collected at hourly intervals until the dicharge ceases or if the discharge is less than eight hours in duration, a minimum of five grab samples taken at evenly spaced intervals during the duration of the discharge

APPENDIX B

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

COFFEEWOOD WATER & WASTEWATER PLANT

During the period beginning with the effective date of this amended ECA and lasting until Coffeewood complies with the items in Appendix A of this amended ECA, Coffeewood shall monitor and limit the discharge from outfall 001 in accordance with the VPDES Permit No VA0087718, except as specified below These interim limits shall retroactively apply, if applicable, as of the first day of the month in which this amended ECA becomes effective These requirements shall be construed in light of the Board's Permit Regulation.

PARAMETER	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Tot Recov Copper (µg/l & g/d)	NL	NL	NA	NA	N/A	N/L	1/6M	Grab
Tot Recov Zinc (µg/l & g/d)	NL	NL	NA	NA	N/A	N/L	1/6M	Grab

N/A = Not Applicable

N/L = No Limit

1/6M = Once per six months

The permittee shall select an analysis level for total recoverable copper and zinc with a quantification level (QL) less than the Site Specific TargetValue listed in Appendix A

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence

Facility Name	Coffeewood Correctional Center
NPDES Permit Number	VA0087718
Permit Writer Name	Douglas Frasier
Date	24 April 2013

Major [X] **Minor** [ ] **Industrial** [X] **Municipal** [X]

I A Draft Permit Package Submittal Includes	**Yes**	**No**	**N/A**
1 Permit Application?	X		
2 Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3 Copy of Public Notice?	X		
4 Complete Fact Sheet?	X		
5 A Priority Pollutant Screening to determine parameters of concern?		X	
6 A Reasonable Potential analysis showing calculated WQBELs?	X		
7 Dissolved Oxygen calculations?	X		
8 Whole Effluent Toxicity Test summary and analysis?	X		
9 Permit Rating Sheet for new or modified industrial facilities?	X		

I B Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1 Is this a new, or currently unpermitted facility?		X	
2 Are all permissible outfalls (including combined sewer overflow points, non process water and storm water) from the facility properly identified and authorized in the permit?	X		
3 Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4 Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5 Has there been any change in streamflow characteristics since the last permit was developed?		X	
6 Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7 Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?		X	
8 Does the facility discharge to a 303(d) listed water? **DOWNSTREAM**		X	
a Has a TMDL been developed and approved by EPA for the impaired water? **DOWNSTREAM**	X		
b Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9 Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10 Does the permit authorize discharges of storm water?		X	

I B Permit/Facility Characteristics – cont.	Yes	No	N/A
11 Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12 Are there any production-based, technology-based effluent limits in the permit?	X		
13 Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14 Are any WQBELs based on an interpretation of narrative criteria?		X	
15 Does the permit incorporate any variances or other exceptions to the State's standards or regulations?	X		
16 Does the permit contain a compliance schedule for any limit or condition?		X	
17 Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18 Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19 Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20 Have previous permit, application, and fact sheet been examined?	X		

Part II NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs
(To be completed and included in the record only for POTWs)

II A Permit Cover Page/Administration	Yes	No	N/A
1 Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2 Does the permit contain specific authorization to discharge information (from where to where, by whom)?	X		

II B Effluent Limits – General Elements	Yes	No	N/A
1 Does the fact sheet describe the basis of final limits in the permit (e g , that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2 Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II C Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1 Does the permit contain numeric limits for ALL of the following BOD (or alternative, e g , CBOD, COD, TOC), TSS, and pH?	X		
2 Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133 103 has been approved?			X
3 Are technology based permit limits expressed in the appropriate units of measure (e g , concentration, mass, SU)?	X		
4 Are permit limits for BOD and TSS expressed in terms of both long term (e g , average monthly) and short term (e g average weekly) limits?	X		
5 Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD_5 and TSS for a 30 day average and 45 mg/l BOD_5 and TSS for a 7 day average)?		X	
a If yes, does the record provide a justification (e g , waste stabilization pond, trickling filter, etc) for the alternate limitations?			X

II D Water Quality-Based Effluent Limits	Yes	No	N/A
1 Does the permit include appropriate limitations consistent with 40 CFR 122 44(d) covering State narrative and numeric criteria for water quality?	X		
2 Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3 Does the fact sheet provide effluent characteristics for each outfall?	X		
4 Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a If yes, does the fact sheet indicate that the 'reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d Does the fact sheet indicate that the "reasonable potential ' and WLA calculations accounted for contributions from upstream sources (i e , do calculations include ambient/background concentrations)?		X	
e Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II D Water Quality-Based Effluent Limits – cont	Yes	No	N/A
5 Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6 For all final WQBELs, are BOTH long term AND short-term effluent limits established?	X		
7 Are WQBELs expressed in the permit using appropriate units of measure (e g , mass, concentration)?	X		
8 Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II E Monitoring and Reporting Requirements	Yes	No	N/A
1 Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2 Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3 Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4 Does the permit require testing for Whole Effluent Toxicity?		X	

II F Special Conditions	Yes	No	N/A
1 Does the permit include appropriate biosolids use/disposal requirements?	X		
2 Does the permit include appropriate storm water program requirements?			X

II F Special Conditions – cont	Yes	No	N/A
3 If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4 Are other special conditions (e g , ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5 Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i e , Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6 Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a Does the permit require implementation of the "Nine Minimum Controls"?			X
b Does the permit require development and implementation of a "Long Term Control Plan"?			X
c Does the permit require monitoring and reporting for CSO events?			X
7 Does the permit include appropriate Pretreatment Program requirements?		X	

II G Standard Conditions	Yes	No	N/A
1 Does the **permit** contain all 40 CFR 122 41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122 41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
Duty to mitigate	Monitoring and records	Transfers
Proper O & M	Signatory requirement	Monitoring reports
Permit actions	Bypass	Compliance schedules
	Upset	24-Hour reporting
		Other non-compliance

2 Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122 42(b)]?	X		

Part II NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals
(To be completed and included in the record for all non-POTWs)

II A Permit Cover Page/Administration	Yes	No	N/A
1 Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2 Does the permit contain specific authorization to-discharge information (from where to where, by whom)?	X		

II B Effluent Limits – General Elements	Yes	No	N/A
1 Does the fact sheet describe the basis of final limits in the permit (e g , that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2 Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II C Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1 Is the facility subject to a national effluent limitations guideline (ELG)?		X	
a If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			X
b If no, does the record indicate that a technology based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?	X		
2 For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125 3(d)?	X		
3 Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology based effluent limits?		X	
4 For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			X
5 Does the permit contain "tiered" limits that reflect projected increases in production or flow?		X	
a If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			X
6 Are technology-based permit limits expressed in appropriate units of measure (e g , concentration, mass, SU)?	X		
7 Are all technology based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?		X	
8 Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		X	

II D Water Quality-Based Effluent Limits	Yes	No	N/A
1 Does the permit include appropriate limitations consistent with 40 CFR 122 44(d) covering State narrative and numeric criteria for water quality?	X		
2 Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3 Does the fact sheet provide effluent characteristics for each outfall?	X		
4 Does the fact sheet document that a reasonable potential' evaluation was performed?	X		
a If yes, does the fact sheet indicate that the 'reasonable potential evaluation was performed in accordance with the State's approved procedures?	X		
b Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		

II D Water Quality-Based Effluent Limits – cont	Yes	No	N/A
c Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?			X
d Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i e , do calculations include ambient/background concentrations where data are available)?			X
e Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?			X
5 Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?			X
6 For all final WQBELs, are BOTH long term (e g , average monthly) AND short-term (e g , maximum daily, weekly average, instantaneous) effluent limits established?			X
7 Are WQBELs expressed in the permit using appropriate units of measure (e g , mass, concentration)?			X
8 Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II E Monitoring and Reporting Requirements	Yes	No	N/A
1 Does the permit require at least annual monitoring for all limited parameters?	X		
a If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver AND, does the permit specifically incorporate this waiver?			
2 Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3 Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?	X		

II F Special Conditions	Yes	No	N/A
1 Does the permit require development and implementation of a Best Management Practices (BMP) plan or site specific BMPs?		X	
a If yes, does the permit adequately incorporate and require compliance with the BMPs?			X
2 If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?		X	
3 Are other special conditions (e g , ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X

II G Standard Conditions	Yes	No	N/A
1 Does the **permit** contain all 40 CFR 122 41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122 41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions

Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset

Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non compliance

2 Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non municipal dischargers regarding pollutant notification levels [40 CFR 122 42(a)]?	X		

Part III Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge

Name	Douglas Frasier
Title	VPDES Permit Writer, Senior II
Signature	
Date	24 April 2013