

252:517-13-2 Run-on and Run-off Controls for CCR Cells

(a) Run-on/Run-off control Systems

The run-on control system consists of Berm/Channel No. 3, which is designed to divert the discharge from a 25-year, 24-hour storm event away from active CCR cells.

Runoff from a 25-year, 24-hour storm event will be contained within the active CCR cells.

(b) Run-off from Active Portion of CCR cell

Precipitation falling on the active CCR cells is contained within the cells, and is not discharged. A water balance demonstrating the active cells are non-discharging appears in Table 2, Appendix F of this application. Run-off from the active CCR cells shall be handled in accordance with the surface water requirements under Section 252:517-13-6.

(c) Run-on and Run-off Control System Plan

(1) Content of the plan

Run-on diversion berms were designed by a Registered Professional Engineer to withstand the flow volume and velocity of 25-year, 24-hour storm events without breaching or overtopping. The diversion berms designs appear in the Appendix D of this application.

Run-off is controlled by the CCR cells. The water balance demonstrating the active cells are non-discharging appears in Table 2, Appendix F of this application.

EVANS has completed the initial run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(3).

(2) Amendment of the plan

EVANS may amend the written run-on and runoff control system plan at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(g)(3). EVANS must amend the written run-on and run-off control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

(3) Timeframes for preparing the initial plan

(A) Existing CCR landfills

The initial run-on and run-off control system plan was prepared prior to the required timeframe of October 17, 2016, when the facility was under the authority of the Oklahoma Department of Mines.

(B) New CCR landfills and any lateral expansion of a CCR landfill

This section is not applicable.

(4) Frequency for revising the plan

Evans shall prepare periodic run-on and run-off control system plans required by paragraph (c)(1) of this Section every five years. The date of completing the initial plan

is the basis for establishing the deadline to complete the first subsequent plan. EVANS may complete any required plan prior to the required deadline provided they place the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), EVANS has completed a periodic run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(3).

(5) PE certification

EVANS shall obtain a certification from a qualified professional engineer stating that the initial and periodic run-on and run-off control system plans meet the requirements of this Section.

(6) DEQ approval required

EVANS shall submit the initial and periodic run-on and run-off control system plans, and any subsequent amendment of the plans, to the DEQ for approval.

(d) Recordkeeping

EVANS shall comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

- **Design Specifications for Diversion Channels / Berms**

DESIGN AND SPECIFICATIONS FOR
BERM/CHANNEL NO. 3
E & A/BIG FORK RANCH
25YR-24HR PRECIPITATION EVENT

PREPARED FOR:

EVANS & ASSOCIATES CONSTRUCTION CO., INC.

3320 N. 4th Street

PONCA CITY, OK 74602

PREPARED BY:

EMERA, CORP.

P. O. BOX 2228

EDMOND, OK 73083

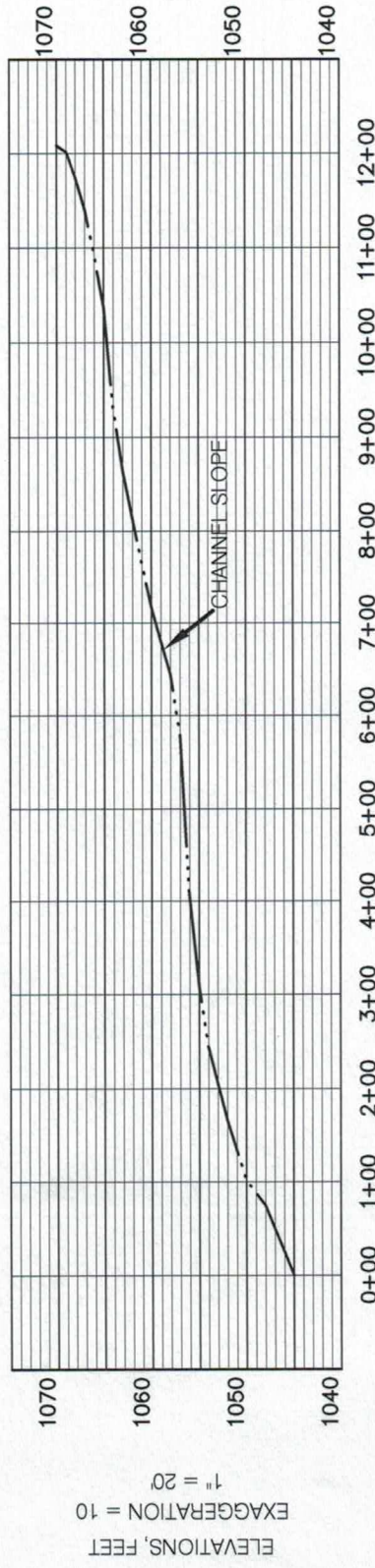
405-557-0000

9-11-2017

SAEED ZAHRAI, P. E.

EMERA, CORP.
P. O. BOX 2228
EDMOND, OK 73083

Phone: 405-557-0000
Email: mszahrai@gmail.com

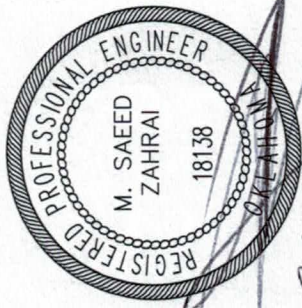


HORIZONTAL DISTANCE, FEET
1" = 200'

PROFILE OF BERM/CHANNEL NO. 3

SCALE: AS NOTED

9-20-17



PREPARED BY:

PREPARED FOR:

EMERA
CORPORATION

**EVANS & ASSOCIATES
CONSTRUCTION CO., INC.**

P.O. BOX 2228 EDMOND, OK 73083

3320 N. 4th STREET, PONCA CITY, OKLAHOMA 74602

DRAWN BY: TN

DATE: 09-20-2017

NAME OF PROJECT: BIG FORK RANCH

DRAWING NO.:

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	6.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Channel	#1	==>	End	0.000	0.000	BERM/CHANNEL NO. 3

#1
Chan'l

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	8.400	8.400	42.36	4.19

Structure Detail:

Structure #1 (Vegetated Channel)

BERM/CHANNEL NO. 3

Trapezoidal Vegetated Channel Inputs:

Material: Grass mixture

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
6.00	2.5:1	2.5:1	2.0	D, B	0.30			5.0

Vegetated Channel Results:

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	42.36 cfs		42.36 cfs	
Depth:	1.07 ft	1.37 ft	1.62 ft	1.92 ft
Top Width:	11.35 ft	12.85 ft	14.11 ft	15.61 ft
Velocity:	4.56 fps		2.60 fps	
X-Section Area:	9.28 sq ft		16.31 sq ft	
Hydraulic Radius:	0.789		1.107	
Froude Number:	0.89		0.43	
Roughness Coefficient:	0.0394		0.0867	

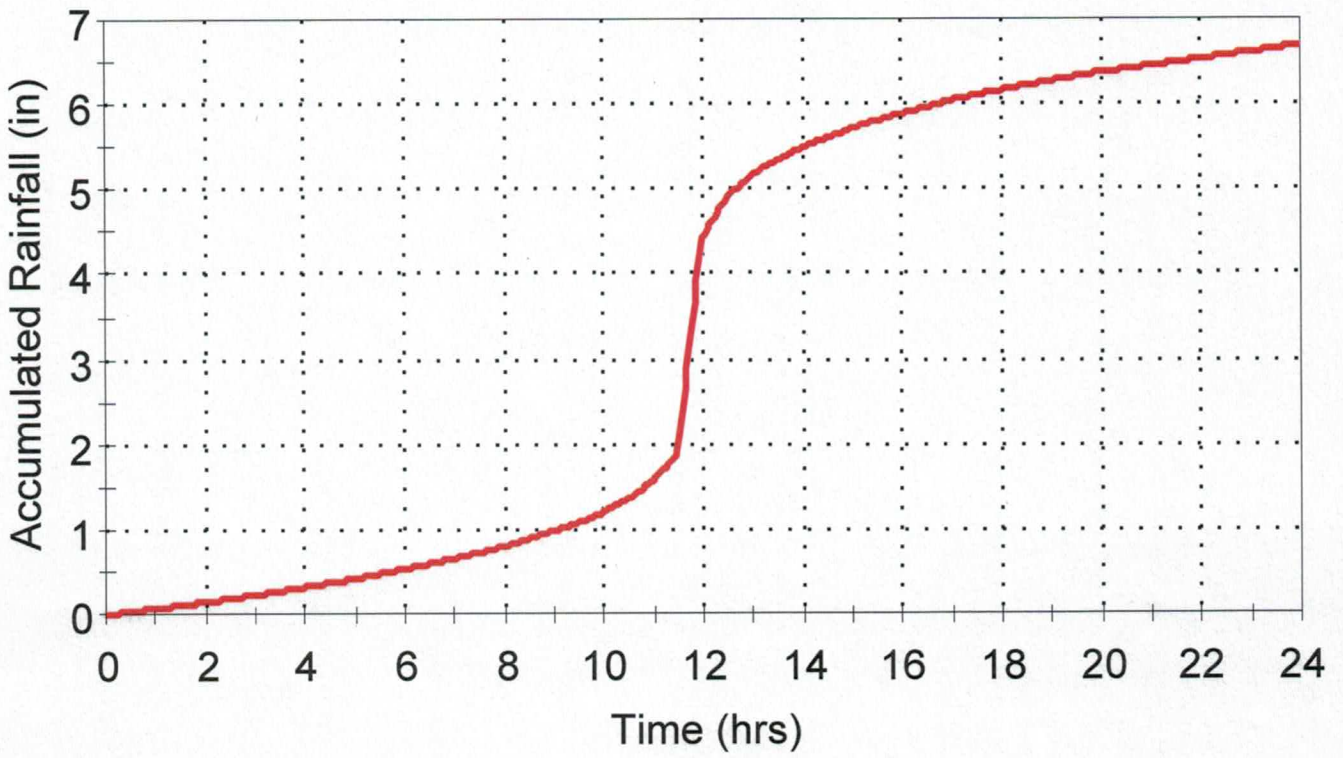
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	8.400	0.026	0.000	0.000	94.000	M	42.36	4.193
Σ		8.400						42.36	4.193

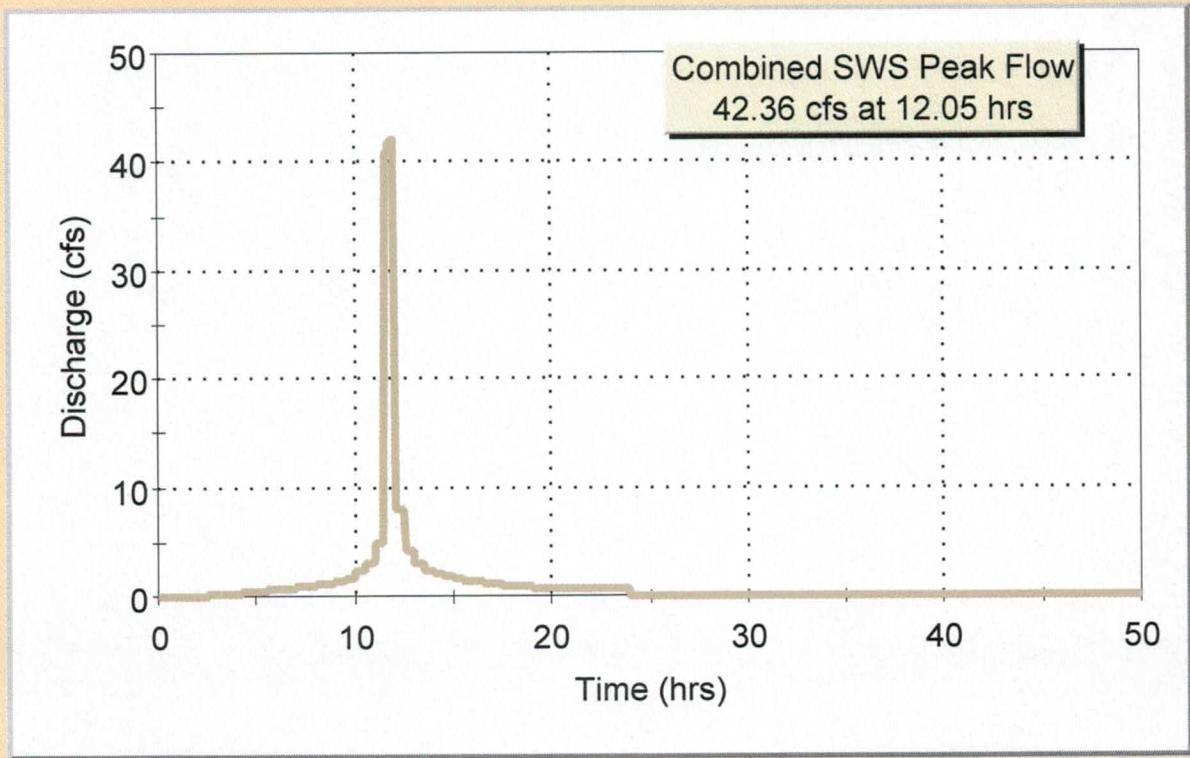
Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	5. Nearly bare and untilled, and alluvial valley fans	4.76	10.00	210.00	2.180	0.026
#1	1	Time of Concentration:					0.026

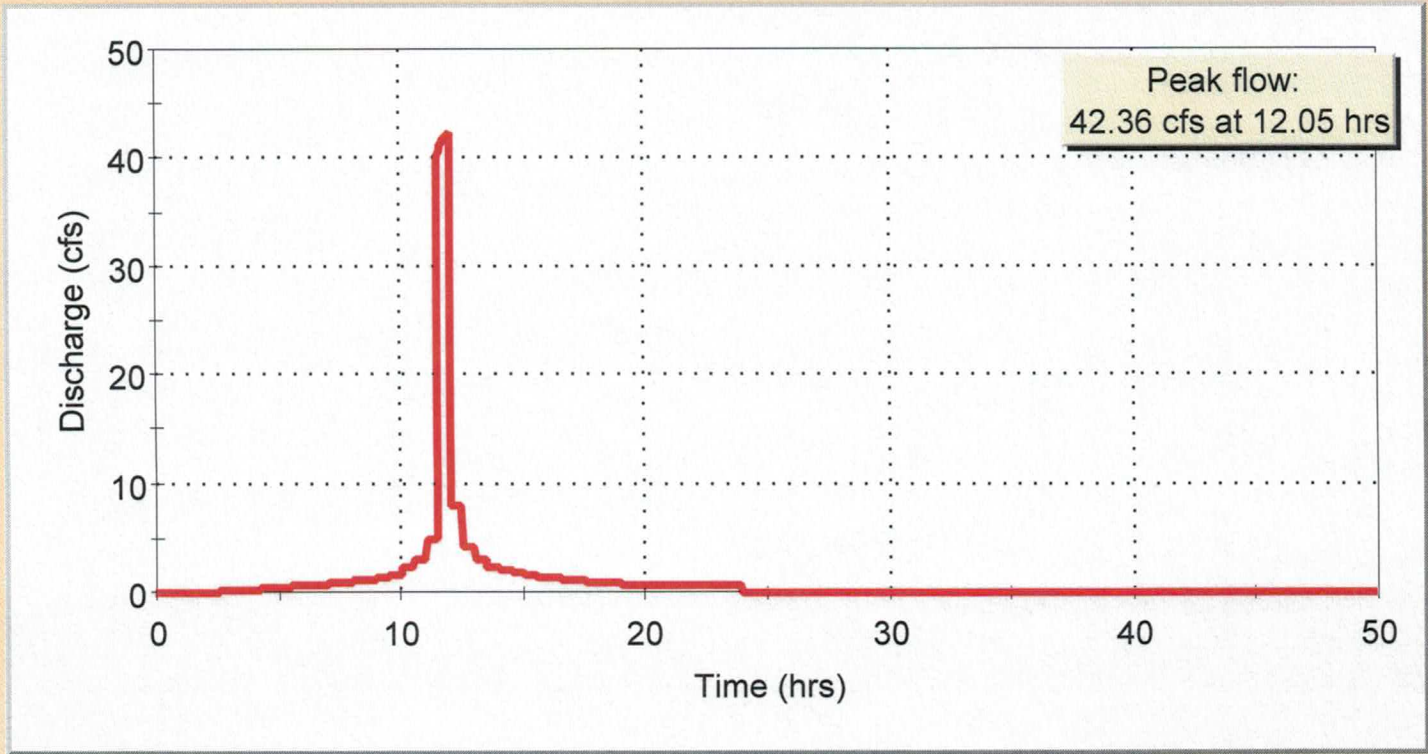
NRCS Type II, 25 yr - 24 hr Storm



Contributing SWS Hydrograph(s) for Structure # 1 (does not include upstream flow)



**Total Inflow Hydrograph to Structure # 1
(includes all upstream flow)**

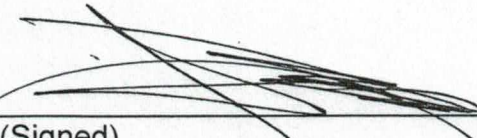


EVANS & ASSOCIATES CONSTRUCTION CO., INC.
3320 N. 14TH, PONCA CITY, OK 74602

RUN-ON/RUN-OFF CONTROL PLAN CERTIFICATION
BIG FORK RANCH FACILITY

This will serve to certify that the Big Fork Ranch facility Run-On/Run-Off Control Plan is designed, constructed, operated, and maintained in accordance with DEQ rules at OAC 252:517-13-2 to: 1) prevent run-on from entering active CCR cells, and 2) contain run-off from active CCR cells after a 24-hour, 25-year storm at the Big Fork Ranch facility.

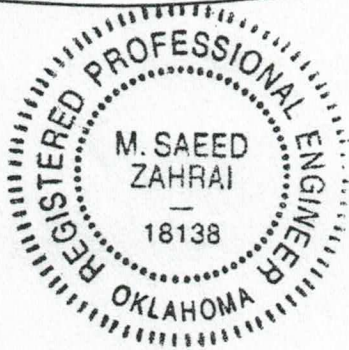
This Certification is prepared under the requirements of DEQ rules at OAC 252-517-13-2(c)(5).



(Signed)

9-13-2017

(Date)



(Sealed) Oklahoma Professional Engineer #

TABLE 2
WATER BALANCE

PARAMETERS	CELL NOS.	
	3	8
Drainage Area, Ac.	6.4	3.5
Size at Final Surface of CCR, Ac.	4.3 @ EL. 1,058'	1.6 @ EL. 1,051'
Size at Final Surface of Covered CCR, Ac.	4.6 @ EL. 1,060'	1.7 @ EL. 1,053'
Water Capacity between Final Surface of CCR and Top of Embankment around the Cell, Ac.-Ft.	8.9	3.3
Average Annual Runoff, In.	4	4
Average Annual Evaporation, In.	59	59
Average Annual Precipitation, In.	42	42
Average Annual Runoff Volume, Ac.-Ft.	2.2	1.2
Average Annual Evaporation Volume at Final Surface of CCR, Ac.-Ft.	21.2	7.9
Average Annual Precipitation Volume within the Cell, Ac.-Ft.	16.0	6.0
Average Annual Runoff Volume Remaining within the Cell, Ac.-Ft.	0.0	0.0