Coal Combustion Residual
Surface Impoundment
History of Construction
Documentation

Basin Electric Power Cooperative
Laramie River Station

October 2016

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Purpose and Introduction

The purpose of this document is to demonstrate compliance with 40 CFR §257.73 (c) which requires the owner or operator to compile a history of construction for existing Coal Combustion Residual (CCR) surface impoundments. The history of construction shall contain, to the extent feasible, the information specified in paragraphs (c)(1)(i) through (xi) of 40 CFR 257.73.

Laramie River Station (LRS) is owned by Missouri Basin Power Project (MBPP) and operated by Basin Electric Power Cooperative (Basin Electric). LRS consists of three 570 megawatt (MW) units located approximately five miles northeast of Wheatland in Platte County, Wyoming. LRS address is 347 Grayrocks Road, Wheatland, WY 82201. Unit 1 went online in 1980, Unit 2 went online in 1981, and Unit 3 went online in 1982.

The Bottom Ash Pond complex is comprised of three cells (1, 2, and 3) and the Emergency Holding Pond complex is comprised of two cells (East and West). For the purposes of this report, the CCR surface impoundments at LRS will be referred to as Bottom Ash Pond 1, Bottom Ash Pond 2, Bottom Ash Pond 3, East Emergency Holding Pond and West Emergency Holding Pond.

The history of construction presented herein was compiled based on existing documentation, to the extent that it is reasonably and readily available and Basin Electric's site experience.

Previous Studies

The United States Environmental Protection Agency (EPA) commissioned an assessment of the five CCR surface impoundments at LRS in April 2011. The August 2012 EPA Report recommended that LRS address the geotechnical stability of the perimeter dikes that surround the CCR impoundments at the site.

Based on the recommendations provided in the EPA Report, Basin Electric commissioned AECOM to conduct a subsurface investigation and geotechnical engineering evaluation of the perimeter dikes for the CCR impoundments at LRS. The AECOM report described the subsurface conditions encountered in the soil borings completed at the site and included results of a laboratory testing program. Information regarding the engineering properties of foundation

and embankment materials presented in this document is largely derived from the aforementioned EPA and AECOM reports.

Operator Contact Information

LRS is owned by MBPP and operated by Basin Electric. MBPP consists of six electric utilities (Basin Electric, Heartland Consumers Power District, Lincoln Electric System, Tri-State Generation and Transmission Association, Western Minnesota Municipal Power Agency and Wyoming Municipal Power Agency). The address of the operator of the CCR impoundments (Basin Electric) is 1717 East Interstate Avenue, Bismarck, ND 58503.

Location of CCR Unit(s) on USGS map

The locations of the five LRS surface impoundments are identified on the map presented in Appendix I.

Purpose and Use of CCR units

Bottom ash and boiler slag form LRS are sluiced to Bottom Ash Pond 3. Water from Bottom Ash Pond 3 is decanted into Bottom Ash Ponds 1 and 2 and then recirculated for various plant processes. Flue gas emission control residuals and water treatment plant spent lime slurry are sluiced into the West Emergency Holding Pond. Water from the West Emergency Pond is decanted into the East Emergency Pond.

CCR Unit Watershed

The general area around LRS consists of a physiographic feature called the Wheatland Flats that covers approximately 125 square miles. The Wheatland Flats are made up of seven distinct river terraces that rise 25 to 160 feet above the present stream levels of the Laramie River. The entire LRS plant site is constructed on the fourth and fifth river terraces. As such, the CCR surface impoundments are located within the Laramie River watershed.

Foundation and Abutment Materials

Surface geology in the vicinity of LRS consists of Quaternary-age alluvial terrace sand, colluvium and loess deposits, underlain by the Arikaree Formation (lower Miocene/Oligocene). The colluvium and loess deposits typically consist of fine grained sands, silty sands and silts

with intermittent deposits of clay and gravel with thicknesses reportedly ranging from about 0 to 50 feet. Colluvial soils are typically identified as loose, unconsolidated deposits of silt, sand and gravel that have accumulated at the base of hill slopes and ridges through erosional processes (rainwash, downward creep, etc.) Loess deposits are formed by the accumulation of wind-blown dusts and are composed of predominantly silt sized particles. The Arikaree Formation typically consists of light gray to tan, fine grained, poorly bedded sandstone containing numerous magnetite grains, with some lenses of siltstone, limestone and tuff.

Engineering Properties of Construction Materials

Bottom Ash Ponds 1, 2 and 3 were constructed with a 30 mil polyvinyl chloride (PVC) liner placed over six inches of bedding material covering the base of the ponds. The PVC liner on the interior slopes of the Bottom Ash Ponds 2 and 3 is overlain by 12 inches of soil and 12 inches of rip rap, serving as protection against wave and ice damage. Bottom Ash Pond 1 has a slightly different configuration, with the PVC liner overlain by 12 inches of soil, 6 inches of bentonite, 24 inches of soil and concrete slope protection at the surface. The East and West Emergency Holding Ponds have a 30 mil Hypalon liner protected by 12 inches of gravel filter and 12 inches of rip rap. The five CCR impoundments were constructed circa 1980, during the construction of LRS, and have not been expanded since being constructed. The impoundment dikes appear to have been constructed by excavating the impoundment basins and placing the excavated material along the perimeter of the basins to form the impoundment dikes.

The CCR unit dikes are generally comprised of granular fill soils at the near surface. The granular fill typically consists of fine to medium-grained sand (SP, SM, SC, etc.) and silt (ML) with minor amounts of gravel, clay and carbonates. A thin layer of silty clay (CL) fill was encountered from 4 to 6 feet in one soil boring. The fill thickness below the crest of the dikes was found to range from about 6 to 28 feet. Fill thickness ranged from about 0 to 8 feet at the toe of the dikes. Fill soils were not encountered at the toe of the dike in two of 23 soil borings completed by AECOM.

The relative density of the granular fill soils was typically in the medium dense to very dense range with some intermittent deposits of loose material, based on Standard Penetration Test (SPT) results. Elevated SPT N-values were observed at several locations, possibly due to local cobble or boulder size material within the granular impoundment fill. Bottom ash, slag, lime and other byproducts were not encountered within the soil borings. The impoundment dike fill soils

were similar in texture to the underlying native geologic deposits (described above), supporting the notion that the impoundment dikes were constructed using locally derived material. It does not appear that bottom ash, slag, or lime byproducts were used as fill in dike construction.

Detailed Dimensional Drawings

Drawings Y46, Y164, Y165, Y172, and Y640 show construction details for the LRS surface impoundments. These drawings are included in Appendix II. Based on the review of the drawings listed above, no natural or manmade features that could adversely affect operation of these CCR units due to malfunction or mis-operation were identified.

Existing Instrumentation

Instrumentation at the five LRS surface impoundments includes only staff gauges to measure pool elevation in each of the ponds. No other instrumentation is present.

Area-capacity Tables

Drawings 0CY-6004 and 0CY-6005 include area-capacity tables for the LRS CCR surface impoundments. These drawings are included in Appendix III.

Spillways and Diversion Features

LRS is a zero discharge facility. No spillways are present. The CCR Units are all above grade; as such, diversion structures are not used. In 2016, the storage capacity of the impoundments was evaluated for a 24-hour duration design storm for the 1,000-year Inflow Design Flood (IDF) using an AutoCAD Civil3D computer model. The computer model evaluated the ability of the ponds to collect and control the 1,000-yr IDF under existing operational and maintenance procedures. The Civil3D model results for the impoundments indicate that the all CCR units have sufficient storage capacity to adequately manage inflows during peak discharge conditions created by the 1,000-yr IDF. Therefore, the spillway requirements in §257.73(d)(1)(v)(A) and (B) are not applicable to the impoundments at LRS.

Construction Specifications for Maintenance and Repair

Construction specifications for any maintenance or repair of the CCR units would be developed if and when necessary. Construction would be in accordance with applicable rules and

regulatory guidance, and would include appropriate use of ASTM Standards and industry best practices.

Structural Stability Information

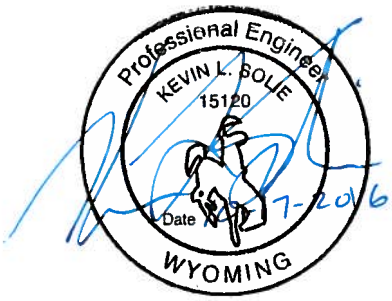
There have been no signs of structural instability for any of the five Ponds at LRS. The April 2014 AECOM Report, however, found a marginal factor of safety (due to overly steep exterior slopes) for the south dikes on the East and West Emergency Holding Ponds. Basin Electric has taken actions to increase the factor of safety to a more conservative level, consistent with requirements set forth in the CCR Rule. Structural stability and safety factor assessment requirements for each of the CCR surface impoundments at LRS are addressed in standalone documents.

Recordkeeping and Reporting

A copy of this document will be placed into the facility's operating record in accordance with 40 CFR §257.105 (Recordkeeping Requirements) and will be posted to Basin Electric Power Cooperative's CCR Web site in accordance with 40 CFR §257.107 (Publicly accessible internet site requirements). Notification will be sent to the relevant State Director in accordance with 40 CFR §257.106 (Notification Requirements).

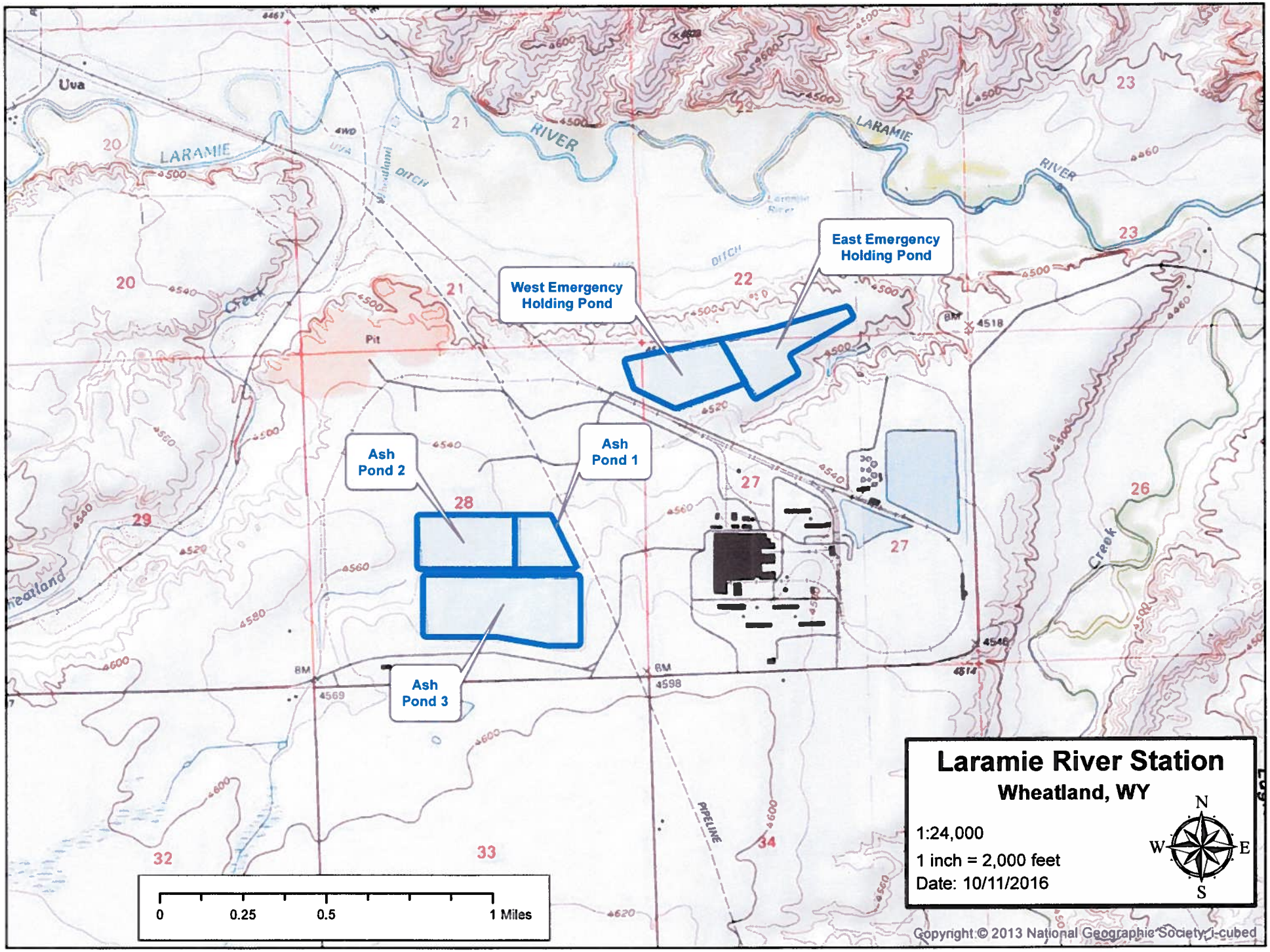
Certification Statement

In accordance with the requirements of 40 CFR §257.73 as specified in the *Standards of Coal Combustion Residuals in Landfills and Impoundments,* I certify the documentation regarding LRS CCR surface impoundment History of Construction is accurate.



Kevin L. Solie, WY PE-15120
October 17, 2016

Appendix I


East Emergency Holding Pond
West Emergency Holding Pond
Ash Pond 2
Ash Pond 1
Ash Pond 3
Laramie River Station
Wheatland, WY
1:24,000
1 inch = 2,000 feet
Date: 10/11/2016
0
0.25
0.5
1 Miles
N
S
E
W
Copyright © 2013 National Geographic Society, i-cubed

Appendix II

NO.	DATE	BY	REVISION
1	6-11-76	DJA	Revised as per Addendum No. 2.
	6-16-76	JCH	Issued
2	7-14-76	RLS	Revised 33-50 as per Change Order No. 1
	7-26-76	JCH	Issued
3	3-14-77	DJB	Revised side slope from 4:1 to Horiz. indicated slope of ditch, 0.03%, added coordinate and spot elevation, added note to existing coordinate.
	3-14-77	RAW	Issued
4	3-15-78	RAA	CONFORMING TO CONSTRUCTION RECORDS

ASH POND GRADING PLAN
CONTRACT NO. 3438
SITE PREPARATION & CONSTRUCTION FACILITIES

LARAMIE RIVER STATION
UNITS 1&2
Wheatland, Wyoming
MISSOURI BASIN POWER PROJECT

Burns & McDonnell
Engineers–Architects–Consultants
KANSAS CITY, MISSOURI

DESIGNED JAM	DETAILED RBA	CHECKED	DRAWING NO.	REV.
DATE March 19,1976			Y46 – 4	
APP. REA March 19,1976			PROJECT 76-813-1	
APP. PROJ. MGR.			SHEET OF SHEETS	

Y46

NO	DATE	BY	REVISION
	3/20/78	DEH	ISSUED FOR CONSTRUCTION
1	3/31/78	DJB	CHANGED 30' TRANSITION FROM INSIDE TO OUTSIDE OF DIKE.
	4/12/78	DJB	REVISED ELEVATIONS AND UPDATED EXISTING GRADING.
	4/14/78	DJB	REVISED DIKE AND ADDED TRANSMISSION TOWER
	5/10/78	DAY	LOWERED TOP OF DIKE, INSIDE TOE OF SLOPE AND ALL SPOT ELEVATIONS 0.75'.
	5/17/78	DJB	ADDED SPOT ELEVATION N528,415.00 E 576,385.00. AS PER CHANGE ORDER NO. 5001.
	5/19/78	DEH	ISSUED
2	7/18/78	DJB	ADDED GRADING FOR CONVEYOR NO. S4 AND CORRECTED EXIST. GRADE
	7/21/78	DEH	ISSUED
3	10/12/80	FOBA	CONFORMING TO CONSTRUCTION RECORDS
1	1/12/88	GHT/DGE	ADDED NOTE 1

NOTES:
1. ELEVATIONS PROVIDED WITHIN WEST EMERGENCY HOLDING POND ARE TO HYPALON LINER

GRADING PLAN
EMERGENCY HOLDING POND - 1
CONTRACT NO. 3449
YARD STRUCTURES

LARAMIE RIVER STATION
UNITS 1&2
Wheatland, Wyoming
MISSOURI BASIN POWER PROJECT

Burns & McDonnell
Engineers - Architects - Consultants
KANSAS CITY, MISSOURI

DESIGNED	DETAILED	CHECKED	DRAWING NO.	REV.
RLS	DJB	RLS	Y164 - 4	
DATE DEC. 9, 1977				
APP. DEA			PROJECT 74-013-1	
APP. PROJ. MGR			SHEET OF SHEETS	

Y164

NO.	DATE	BY	REVISION
	3/29/78	DEH	ISSUED FOR CONSTRUCTION
1	3/31/78	DJB	CHANGED 30' TRANSITION FROM INSIDE TO OUTSIDE OF DIKE.
	4/12/78	DJB	REVISED ELEVATIONS
	5/10/78	DAY	LOWERED TOP OF DIKE, INSIDE TOE OF SLOPE, AND ALL SPOT ELEVATIONS 0.75'. CORRECTED END RD.V TO STA. 12+24.66. ADDED PUMPHOUSE, & TROUGHS AND COORDINATES, AND NOTES 1,2,3. AS PER CHANGE ORDER NO. 5001.
	5/19/78	DEH	ISSUED
2	6/13/79	DJB	REVISED BOTTOM OF DIKE EL. IN EAST POND AS PER CHANGE ORDER NO. 3449-13
	6/14/79	DJB	CORRECTED COORDINATE AT THE BEGINING OF THE V-DITCH
		DEH	ISSUED
3	2/12/80	FOBA	CONFORMING TO CONSTRUCTION RECORDS
4	1/12/88	DEZ BWT/RSE	ADDED NOTE 4

NOTES:

1. FOR PIPING DETAILS SEE DWG. U38
2. FOR DETAILS OF PUMPHOUSE SEE DWG. A276 AND DWG. S495
3. FOR DETAILS OF LINER INSTALL. SEE DWG. Y172
4. ELEVATIONS PROVIDED WITHIN WEST EMERGENCY HOLDING POND ARE TO HYPALON LINER

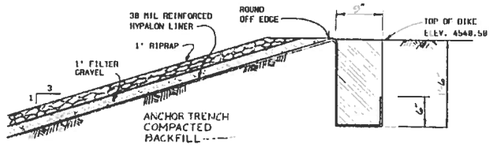
GRADING PLAN
EMERGENCY HOLDING POND - 2
CONTRACT NO. 3449
YARD STRUCTURES

LARAMIE RIVER STATION
UNITS 1&2
Wheatland, Wyoming
MISSOURI BASIN POWER PROJECT

Burns & McDonnell
Engineers - Architects - Consultants
KANSAS CITY, MISSOURI

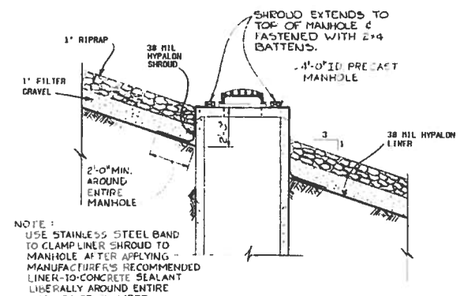
DESIGNED	DETAILED	CHECKED	DRAWING NO.	REV.
BJB	DJB	RAS	Y165 - 4	
DATE DEC. 9, 1977			PROJECT 76-012-1	
APP. REA			SHEET OF SHEETS	
APP. PROJ. MGR.				

Y165



NOTES:
1. THROW ALL DIRT FROM TRENCH EXCAVATION TOWARD CENTER OF DIKE AWAY FROM SLOPE.
2. ANCHOR LINER AS SHOWN COMPLETELY AROUND BOTH CELLS OF THE POND.

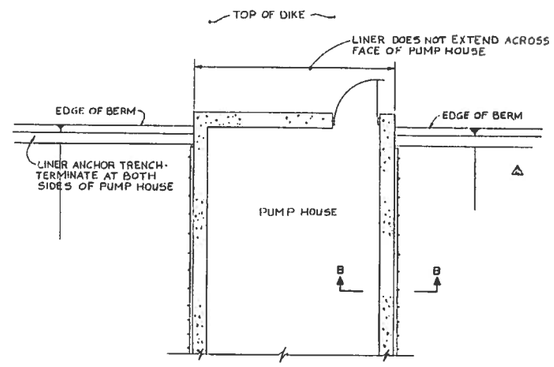
TYPICAL LINER ANCHORING DETAIL
NOT TO SCALE



NOTE:
USE STAINLESS STEEL BAND TO CLAMP LINER SHROUD TO MANHOLE AFTER APPLYING MANUFACTURER'S RECOMMENDED LINER-TO-CONCRETE SEALANT LIBERALLY AROUND ENTIRE AREA TO BE CLAMPED.

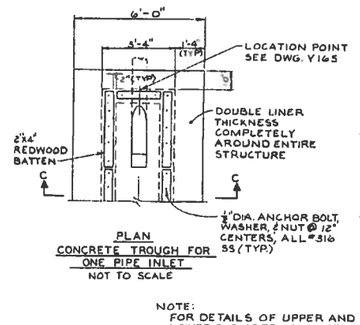
LINER ATTACHMENT DETAIL
AT INLET STRUCTURE
NOT TO SCALE

FOR DETAILS OF INLET STRUCTURE, SEE DWG. UP 56



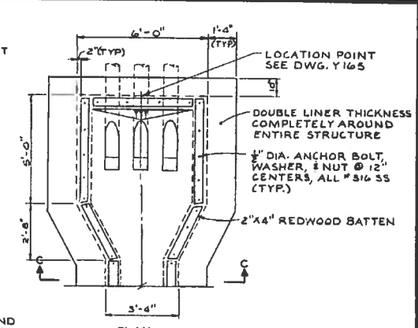
PLAN
NOT TO SCALE

FOR DETAILS OF PUMP HOUSE, SEE DWG. A 276

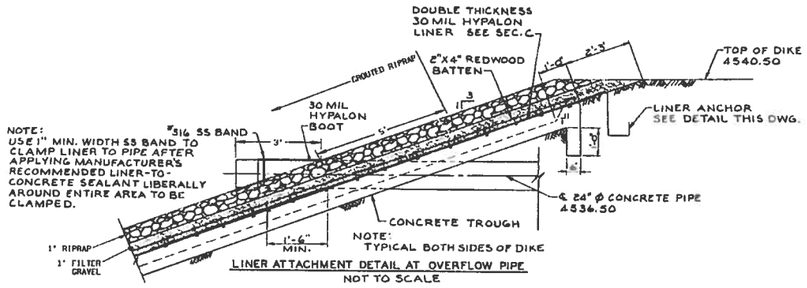


PLAN
CONCRETE TROUGH FOR ONE PIPE INLET
NOT TO SCALE

NOTE:
FOR DETAILS OF UPPER AND LOWER END OF TROUGHS SEE DETAILS THIS DRAWING.

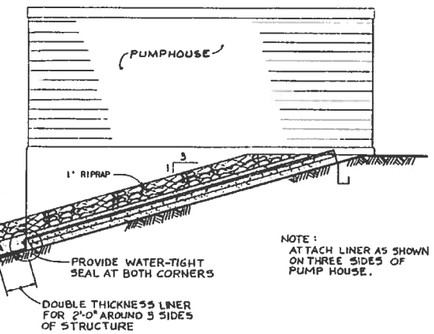


PLAN
THREE PIPE INLET
NOT TO SCALE



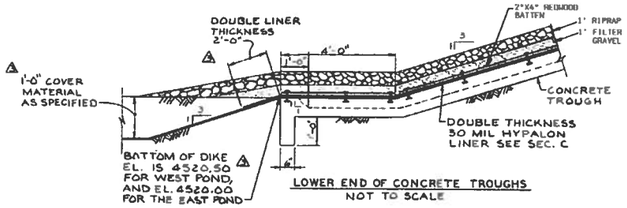
NOTE:
USE 1" MIN. WIDTH SS BAND TO CLAMP LINER TO PIPE AFTER APPLYING MANUFACTURER'S RECOMMENDED LINER-TO-CONCRETE SEALANT LIBERALLY AROUND ENTIRE AREA TO BE CLAMPED.

LINER ATTACHMENT DETAIL AT OVERFLOW PIPE
NOT TO SCALE

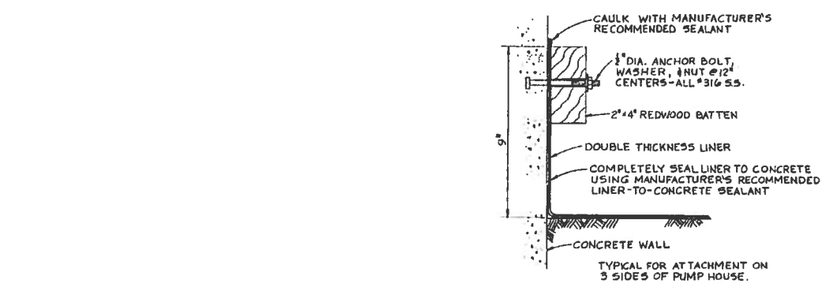


NOTE:
ATTACH LINER AS SHOWN ON THREE SIDES OF PUMP HOUSE.

NORTH ELEVATION
NOT TO SCALE

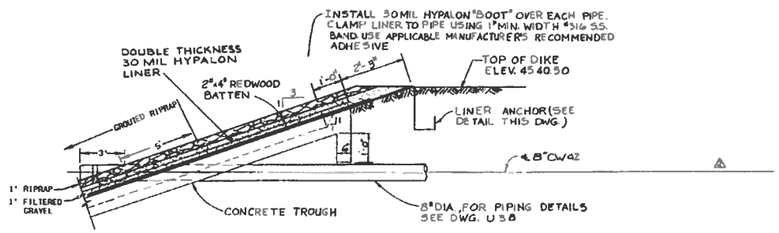


LOWER END OF CONCRETE TROUGHS
NOT TO SCALE

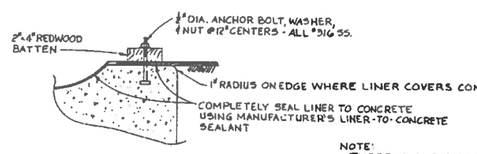


SECTION B
NOT TO SCALE

DETAILS OF ATTACHMENT AND TERMINATION OF LINER AT PUMP HOUSE



UPPER END OF CONCRETE TROUGHS
NOT TO SCALE



DETAIL 1
NOT TO SCALE

TYPICAL DETAILS OF LINER ATTACHMENT AT CONCRETE TROUGHS

NOTE:
THERE IS ONE THREE-PIPE INLET CONCRETE TROUGH, ONE ONE-PIPE INLET CONCRETE TROUGH, AND TWO OVERFLOW PIPE CONCRETE TROUGHS.

NO.	DATE	BY	REVISION
4	5/15/78	EWS	THIS DWG. ADDED AS PER CHANGE ORDER NO. 5001
	5/19/78	DEH	ISSUED
3	6-6-78	PJM	ADDED COORDINATE AND 8" CW42 THROUGH DETAIL REVISION
	6-9-78	DEH	ISSUED
2	6-14-79	DJB	REVISED AMOUNT OF COVER MATERIAL, AND EL. OF BOTTOM OF DIKE IN THE EAST POND AS PER CHANGE ORDER NO. 3449-13
		DEH	ISSUED
1	12/12/80	FOBA	CONFORMING TO CONSTRUCTION RECORDS
0	1/15/98	RHT DSE TJE	AS BUILT TO SHOW FILTER GRAVEL AND RIPRAP

EMERGENCY HOLDING POND DETAILS
CONTRACT NO. 3449
YARD STRUCTURES

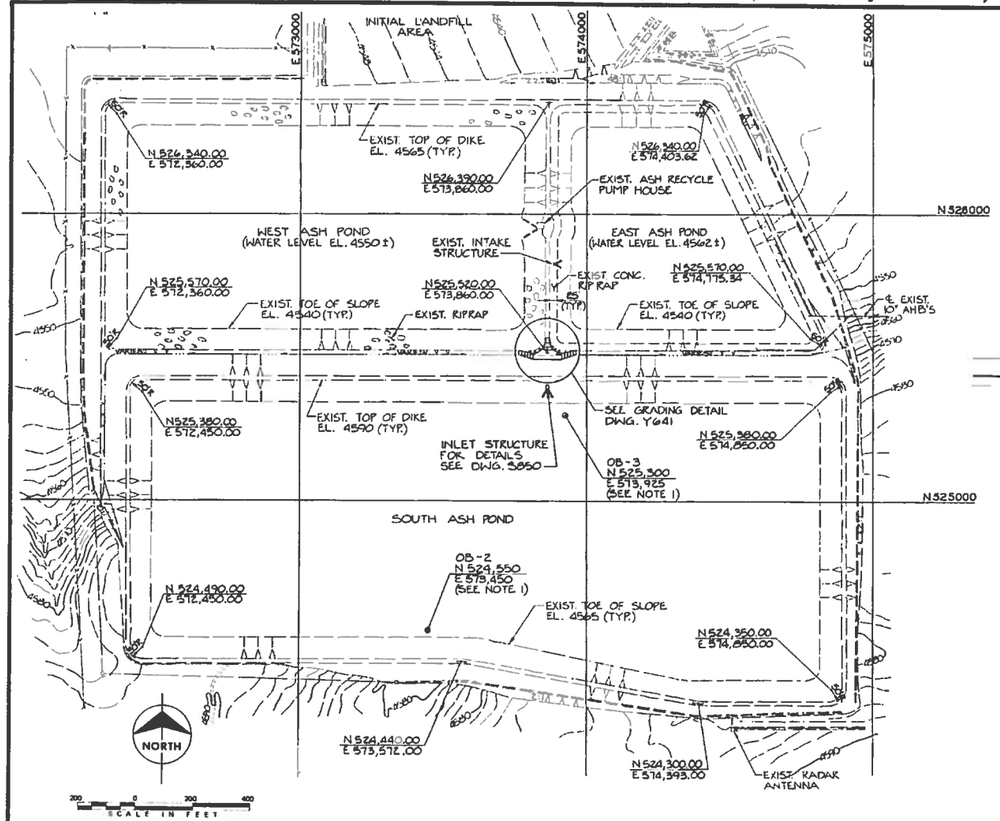
LARAMIE RIVER STATION
UNITS 1&2
Wheatland, Wyoming
MISSOURI BASIN POWER PROJECT

Burns & McDonnell
Engineers - Architects - Consultants
KANSAS CITY, MISSOURI

DESIGNED	DETAILED	CHECKED
TEG	EWS	TEG

DRAWING NO. Y172 — 5
REV.
DATE
APP. REA
PROJECT 74-0121
APP. PROJ. MGR.
SHEET 1 OF 1 SHEETS

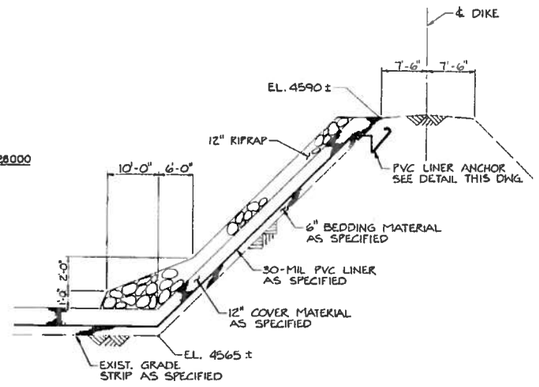
Y172



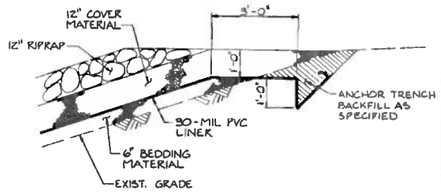
PLAN

NOTES:

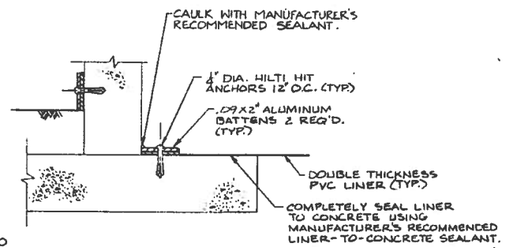
1. OB-2 AND OB-3 ARE EXIST. PIEZOMETERS CONSTRUCTED OF 2" PVC PIPE. CUT OFF AND CAP PVC PIPE 1'-0" BELOW LINER.
2. ALL SIDE SLOPES ARE 3:1, UNLESS OTHERWISE NOTED.



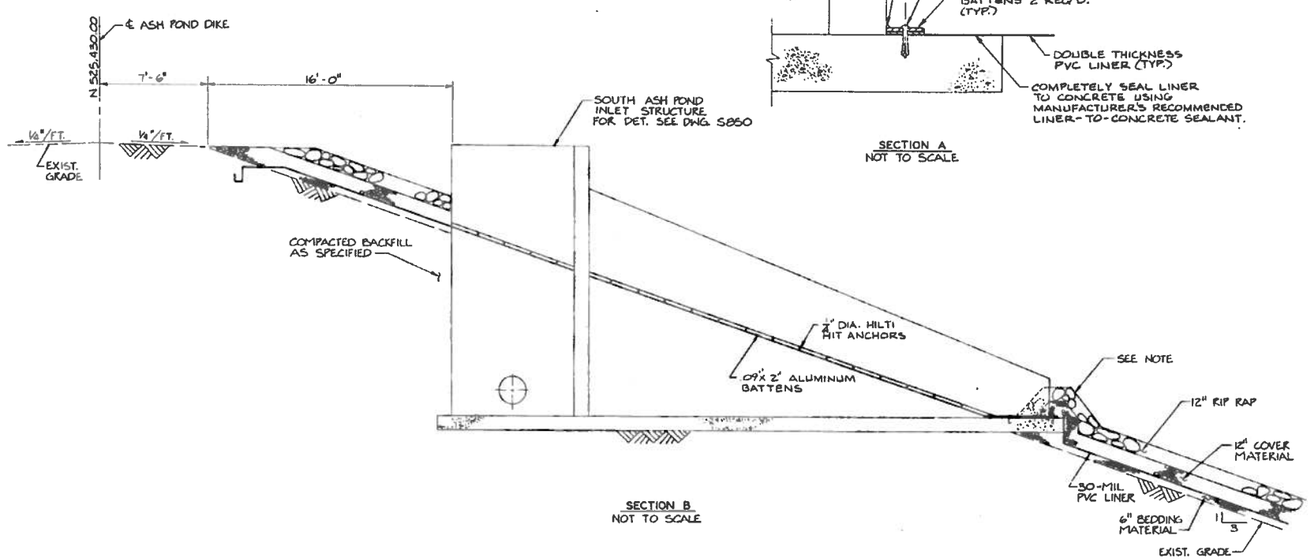
TYPICAL SECTION
PVC LINER
NOT TO SCALE



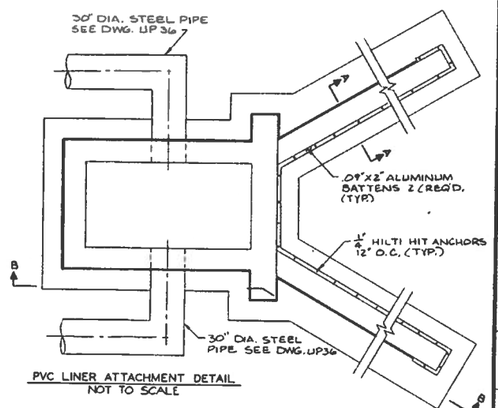
PVC LINER ANCHOR DETAIL
NOT TO SCALE



SECTION A
NOT TO SCALE



SECTION B
NOT TO SCALE



PVC LINER ATTACHMENT DETAIL
NOT TO SCALE

NOTE:
PVC LINER SHALL BE COVERED BY A MINIMUM OF 12" COVER MATERIAL AND 12" RIPRAP WHERE PVC LINER ATTACHES TO INLET STRUCTURE.

NO.	DATE	BY	REVISION
4	4-22-81	GWB	REVISED PER ADDENDUM NO. 1
	3-27-81	RLS	ISSUED AS BID
3	1-11-82	DJB	CONFORMING TO CONSTRUCTION RECORDS

SOUTH ASH POND DETAILS
CONTRACT NO. 3535
SOUTH ASH POND LINER

LARAMIE RIVER STATION
UNIT 3
Wheatland, Wyoming
MISSOURI BASIN POWER PROJECT

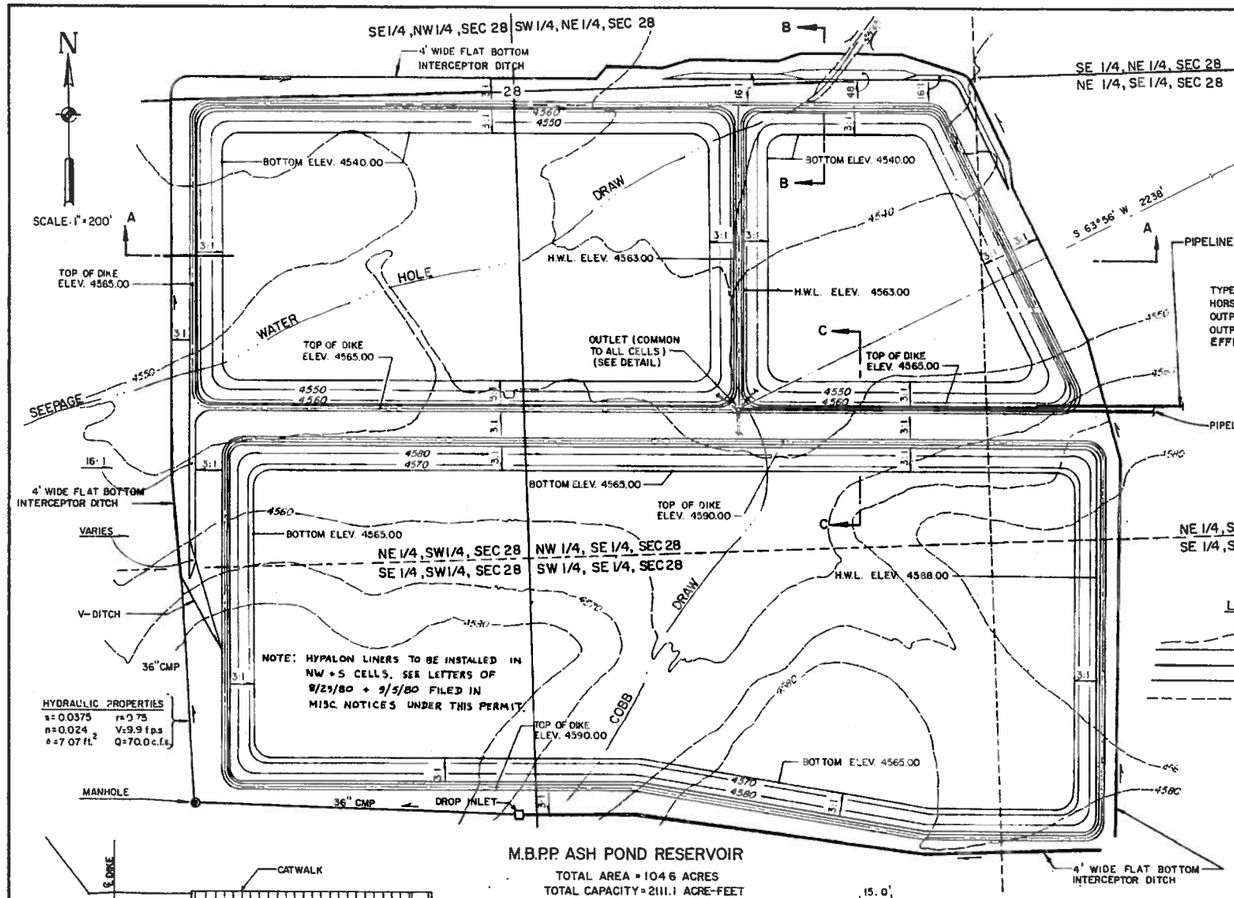
Burns & McDonnell
Engineers - Architects - Consultants
KANSAS CITY, MISSOURI

DESIGNED	DRAWN	CHECKED
K.L.S.	G.W.B.	K.L.S.

DATE APRIL 17, 1981
APP. REA
APP. PROJ. MGR.
DRAWING NO. Y640 – 2 REV
PROJECT 77-111-1
SHEET OF SHEETS

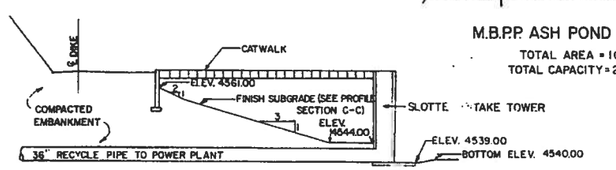
Y640
A2

Appendix III

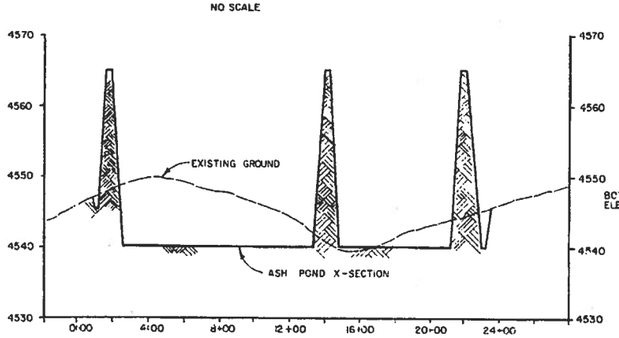


M.B.P.P. ASH POND RESERVOIR

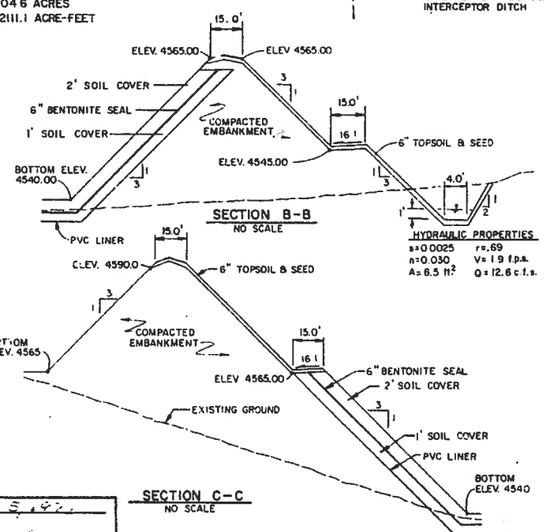
TOTAL AREA = 104.6 ACRES
TOTAL CAPACITY = 2111.1 ACRE-FEET



OUTLET WORKS DETAIL
NO SCALE



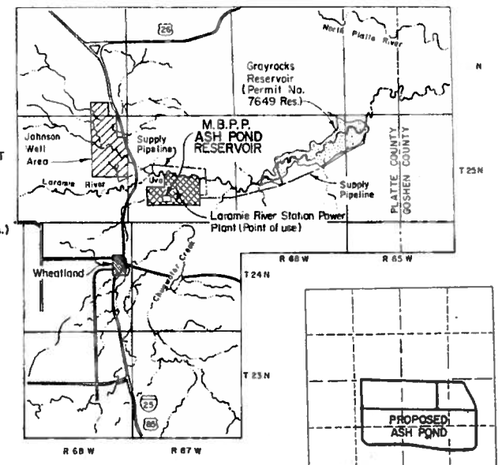
SECTION A-A
SCALE: HORIZ. 1" = 400'
VERT. 1" = 10'



SECTION B-B
NO SCALE

SECTION C-C
NO SCALE

APPROVED: October 5, 1981
George L. Christopulos
GEORGE L. CHRISTOPULOS, STATE ENGINEER



LOCATION MAPS
NO SCALE

CERTIFICATION

I, *Joseph C. Lord*, of Laramie, Wyoming, hereby certify that this map has been prepared under my direction and that it correctly represents the proposed ash pond to accompany the application filed herewith. Engineering design shown hereon was developed by Burns & McDonnell, of Kansas City, Missouri. Section , corners, and subdivision lines were established by Banner Associates, Inc., during an actual survey of the proposed Missouri Basin Power Project Laramie River Station Site, made during February, March, and April 1975.

Joseph C. Lord
Joseph C. Lord Wyoming P.E. No. 190

STORAGE RESERVOIR CAPACITY TABLE

	ELEVATION	AREA (acres)	AVERAGE END AREA (acres)	CAPACITY (acre-feet)	ACCUMULATED CAPACITY (acre-feet)
	NORTHEAST CELL				
BOTTOM	4540	10.0			
			10.4	52.0	52.0
	4545	10.8			
			11.4	57.0	109.0
	4550	12.0			
			12.3	62.3	171.3
	4555	12.9			
			13.5	67.5	238.8
	4560	14.1			
			14.6	43.8	282.6
MAX. H.W.L.	4563	15.1			
	NORTHWEST CELL				
BOTTOM	4540	22.8			
			23.5	117.3	7.3
	4545	24.1			
			24.9	124.5	241.8
	4550	25.7			
			26.4	132.0	373.8
	4555	27.1			
			28.0	139.8	513.5
	4560	28.8			
			29.5	88.5	602.0
MAX. H.W.L.	4563	30.2			
	SOUTH CELL				
BOTTOM	4565	48.0			
			49.1	245.3	245.3
	4570	50.1			
			51.3	256.5	501.8
	4575	52.5			
			53.8	268.8	770.5
	4580	55.0			
			56.2	281.0	1051.5
	4585	57.4			
			58.4	175.1	1226.6
MAX. H.W.L.	4588	59.3			
	TOTAL CAPACITY			2111.1 Acre-Feet	

TOTAL STORAGE (ACTIVE)
POLLUTION CONTROL
2111 ACRE-FEET

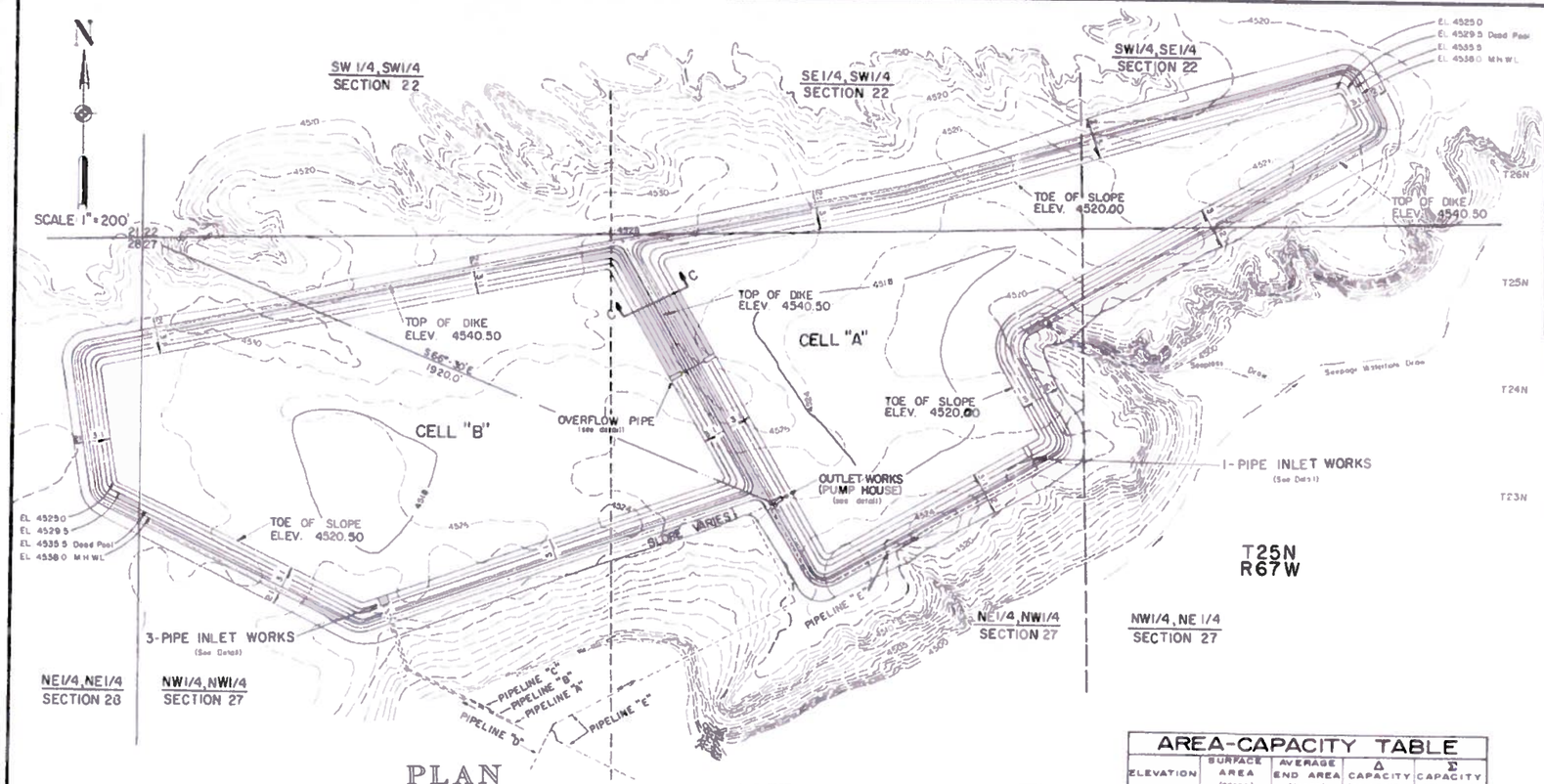
MAP
TO ACCOMPANY APPLICATION FOR
M.B.P.P. ASH POND
RESERVOIR

OCY-6004

APPLICANT
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVE
BISMARCK, NORTH DAKOTA 58501

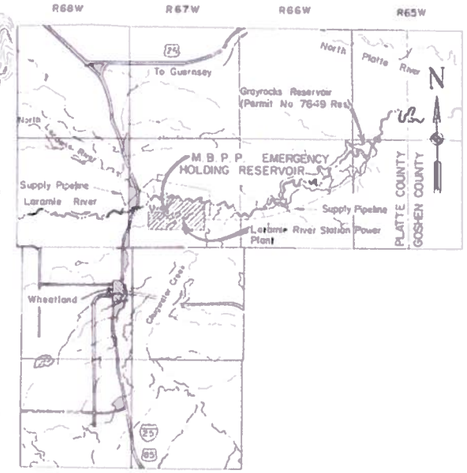
OCY-6004

DENIED 22 '82



PLAN
MBPP EMERGENCY HOLDING RESERVOIR

TOTAL AREA = 54.10 ACRES
TOTAL CAPACITY = 915.70 ACRE-FEET



VICINITY MAP

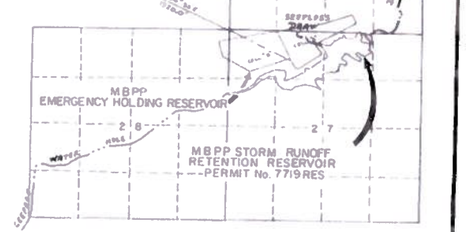
SCALE: MILES

AREA-CAPACITY TABLE

ELEVATION	SURFACE AREA (acres)	AVERAGE END AREA (acres)	Δ CAPACITY (acre-feet)	Σ CAPACITY (acre-feet)
4515.5	0			0
		2.4	6.0	
4518.0	7.3			6.0
		13.2	26.4	
4520.0	19.1			32.4
		20.0	100.0	
4525.0	20.9			132.4
		21.8	98.1	
4529.5	22.6			230.5
		23.6	141.6	
4535.6	24.7			372.1
		25.2	63.0	
4538.0	25.7			435.1
4516.0	0			0
		0.9	1.0	
4518.0	1.4			1.0
		12.3	30.7	
4520.5	23.1			31.7
		23.7	106.7	
4525.0	24.4			138.4
		25.1	112.9	
4529.5	25.8			251.3
		26.6	159.6	
4535.5	27.5			410.9
		27.9	69.7	
4538.0	28.4			480.6

POLLUTION CONTROL
INDUSTRIAL USE
CELL "A"
CELL "B"
MHWL
ACTIVE CAPACITY 204.6 AC-FT
INACTIVE CAPACITY 40.9 AC-FT
ACTIVE CAPACITY 69.7 AC-FT

TOTAL CAPACITY 915.70 Acre-Feet



T25N, R67W

LOCATION MAP

SCALE 1" = 2000'

CERTIFICATION

I, *Joseph C. Lord*, of Laramie, Wyoming, hereby certify that this map has been prepared under my direction and that it correctly represents the proposed emergency holding reservoir to accompany the application filed herewith. Engineering design shown hereon was developed by Burns & Mc Donnell, of Kansas City, Missouri. Section lines, corners, and subdivision lines were established by Banner Associates, Inc., during an actual survey of the proposed Missouri Basin Power Project Laramie River Station Site, made during February, March, and April 1975.

Joseph C. Lord
Joseph C. Lord Wyoming P.E. No. 1903

LEGEND

- 4530 — EXISTING CONTOURS
- 4518 — NEW CONTOURS
- PIPELINE
- SECTION LINE
- 1/4 SECTION LINE
- 1/16 SECTION LINE

* After submitting the original filing for the M.B.P.P. Emergency Holding Reservoir, T.F. No 23 2/149, a change in design increased the capacity by 7.3 acre-feet. A new application was filed and this original map was revised. Therefore, this map will serve both the rejected filing and the new filing. See letter dated May 21, 1979, filed with Rejected Application, T.F. No. 23 2/149

PIPELINE (INLET) DATA

PIPE	DIAMETER (in)	MATERIAL	Q (g.p.m.)	SOURCE
A	6	PVC	500	UNIT 1 DEMINERALIZER
B	8	FRP	800	DEMINERALIZER BUILDING (SCRUBBER SLUICE)
C	6	PVC	400	WATER TREATMENT PLANT (ACID WASTE)
D	6	FRP	485	ASH POND (BLOW DOWN)
E	8	FRP	987	CIRCULATING WATER SYSTEM (COOLING TOWERS)

* Temp. File No. 23 2/149
REJECTED: April 21, 1980
George L. Christopulos
GEORGE L. CHRISTOPULOS, STATE ENGINEER

Temp. File No. 23 2/181
APPROVED: April 21, 1980
George L. Christopulos
GEORGE L. CHRISTOPULOS, STATE ENGINEER

MAP
TO
ACCOMPANY APPLICATION
FOR
M.B.P.P. EMERGENCY HOLDING RESERVOIR
APPLICANT
BASIN ELECTRIC POWER COOPERATIVE
1717 E. INTERSTATE AVE.
BISMARCK, NORTH DAKOTA 58501
FACILITY: LARAMIE RIVER STATION
LOCATION/UNIT: 1 2 3
BASIN NUMBER: 0CY-6005
MAR., 1979 SHT. 1 OF 2

23 2/ 2nd Filing Rejected 8/20 Rec