



January 11, 2013

Jason Murdock  
Naughton Power Plant  
P.O. Box 191  
Highway 189 South  
Kemmerer, Wyoming 83101

Subject: Naughton Power Plant January 12, 2012 High Wind Event Report

Dear Mr. Murdock:

On January 12, 2012, the Naughton Power Plant PM<sub>10</sub> monitoring location recorded an ambient 24-hour PM<sub>10</sub> concentration that exceeded the 24-hour PM<sub>10</sub> National Ambient Air Quality Standard (NAAQS) and Wyoming Ambient Air Quality Standard (WAAQS) of 150  $\mu\text{g}/\text{m}^3$ . This report examines the exceptional event criteria as set forth in 40 CFR Part 50.14 and discusses whether the event can be classified as “exceptional” in accordance with the criteria.

### Monitoring Station

PacifiCorp operates an instrumented 50-meter meteorological tower and a continuous Met One Beta Attenuation Mass (BAM) PM<sub>10</sub> monitor that is adjacent to the meteorological tower at the Naughton Power Plant. Figure 1 presents the location of the 50-meter tower and PM<sub>10</sub> monitoring location.



**Figure 1 – Location of Naughton Power Plant Monitoring Stations**



The BAM is an EPA Federal Equivalent Method for measuring PM<sub>10</sub>. Hourly concentrations of PM<sub>10</sub> are output by the BAM. The BAM has an hourly measurement range of 0 to 1,000 µg/m<sup>3</sup>. An offset is input into the BAM software to shift the entire range of the BAM down slightly so that will record from -15 to 985 µg/m<sup>3</sup>, instead of 0 to 1,000 µg/m<sup>3</sup>. The BAM was set in this manner to measure slightly negative concentration numbers near zero, which is helpful to differentiate between normal noise and a failure such as punctured filter tape.

### **Exceptional Event Requirements**

40 CFR Part 50.14 (c)(3)(iv) states: “The demonstration to justify data exclusion shall provide evidence that:

(A) The event satisfies the criteria set forth in 40 CFR 50.1(j);

(j) *Exceptional event* means an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the Administrator in accordance with 40 CFR 50.14 to be an exceptional event. It does not include stagnation of air masses or meteorological inversions, a meteorological event involving high temperatures or lack of precipitation, or air pollution relating to source noncompliance.

(B) There is a clear causal relationship between the measurement under consideration and the event that is claimed to have affected the air quality in the area;

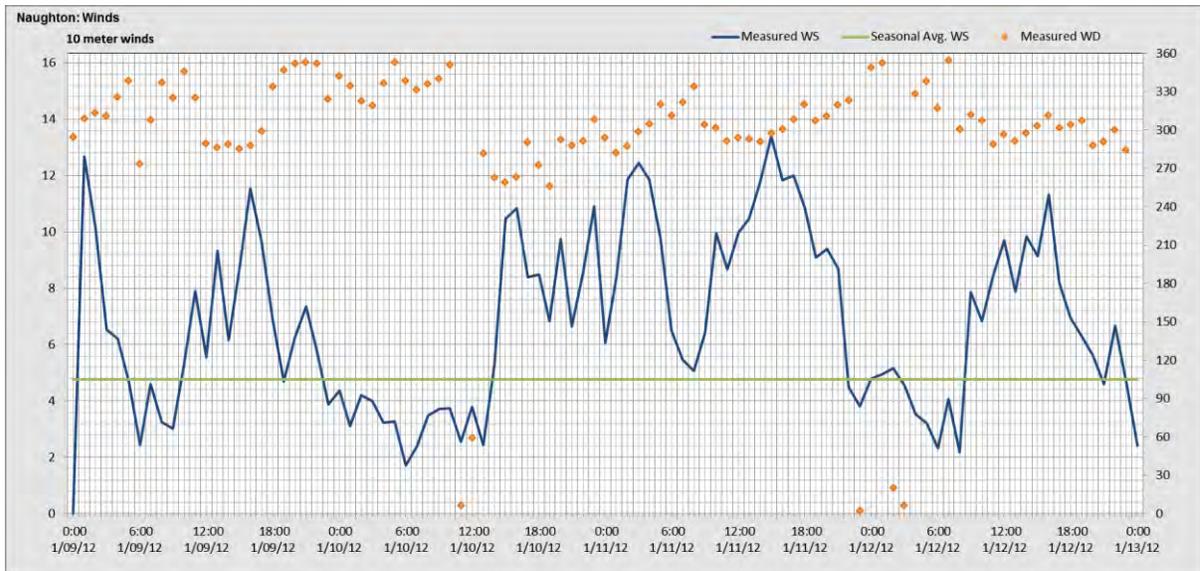
(C) The event is associated with a measured concentration in excess of normal historical fluctuations, including background; and

(D) There would have been no exceedance or violation but for the event.”

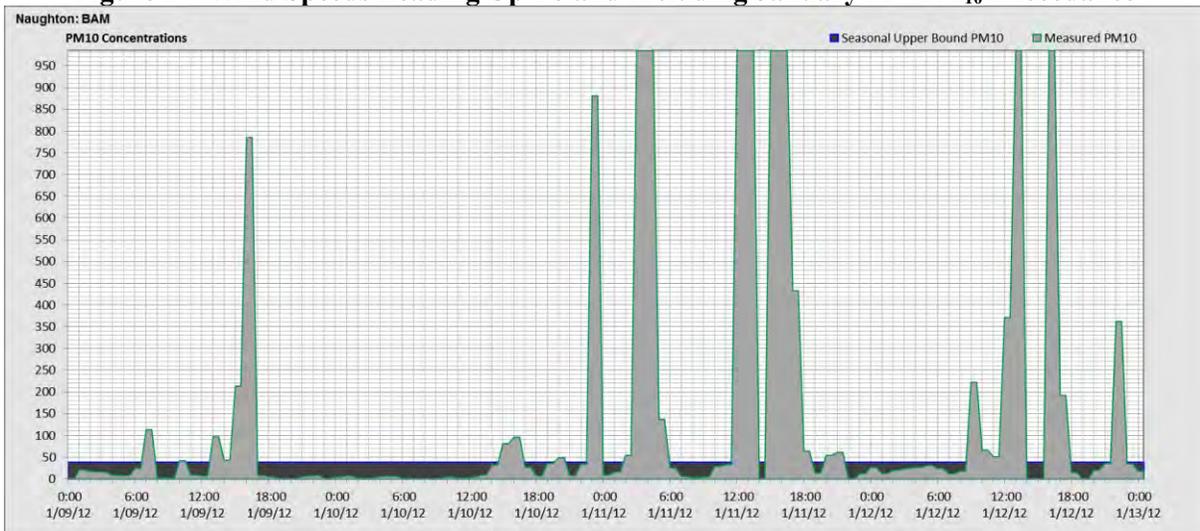
### **Clear and Casual Relationship**

On January 12, 2012, the Naughton Power Plant experienced a wind event. 10-meter wind speed data collected at the 50-meter meteorological tower showed an average 24-hour wind speed of 6.1 meters per second (m/s) or 13.6 miles per hour (mph) with a maximum one-hour average wind speed of 11.3 m/s (25.3 mph) with gusts to 16.5 m/s (36.9 mph). The highest wind speeds during the day occurred between the hours of 9:00 through 18:00.

Winds were primarily out of the west-northwest with directions ranging from 285 to 315 degrees from true north. Concurrent with the wind event, PM<sub>10</sub> concentrations measured by PacifiCorp's BAM at the Naughton Power Plant recorded a 24-hour average concentration of 168 µg/m<sup>3</sup>. PM<sub>10</sub> concentrations were highest 9:00 through 16:00, and at 22:00 on January 12. The maximum hourly concentration for January 12 was 985 µg/m<sup>3</sup> which occurred at 13:00 and 16:00. Figures 2 and 3 present the wind speed and PM<sub>10</sub> data leading up to and including the PM<sub>10</sub> exceedance measured on January 12<sup>th</sup>.

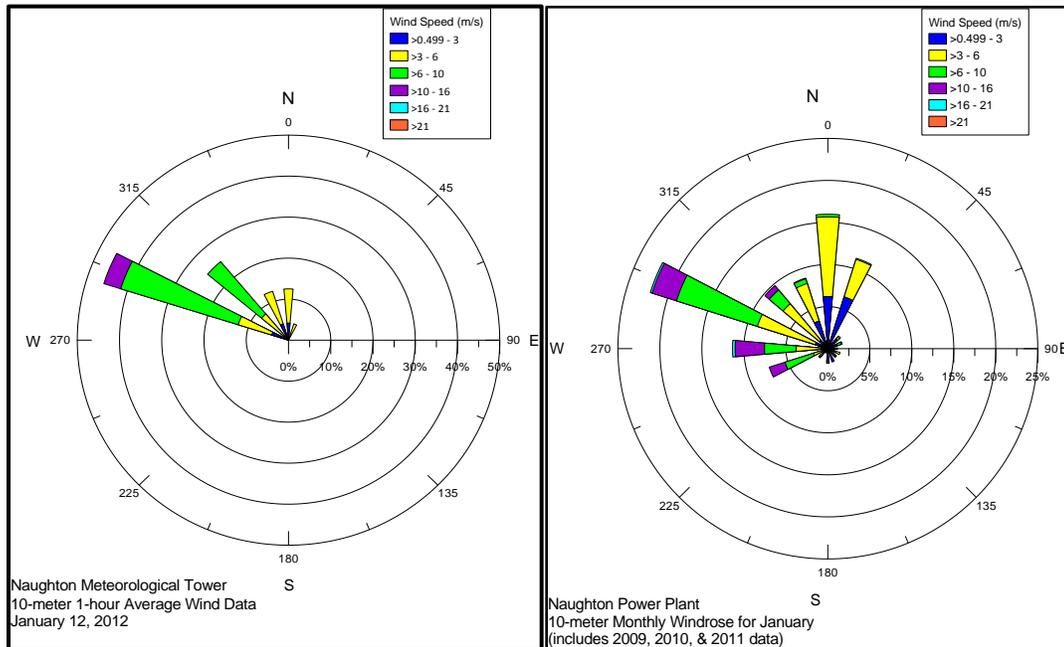


**Figure 2 – Wind Speeds Leading Up To and Including January 12<sup>th</sup> PM<sub>10</sub> Exceedance**



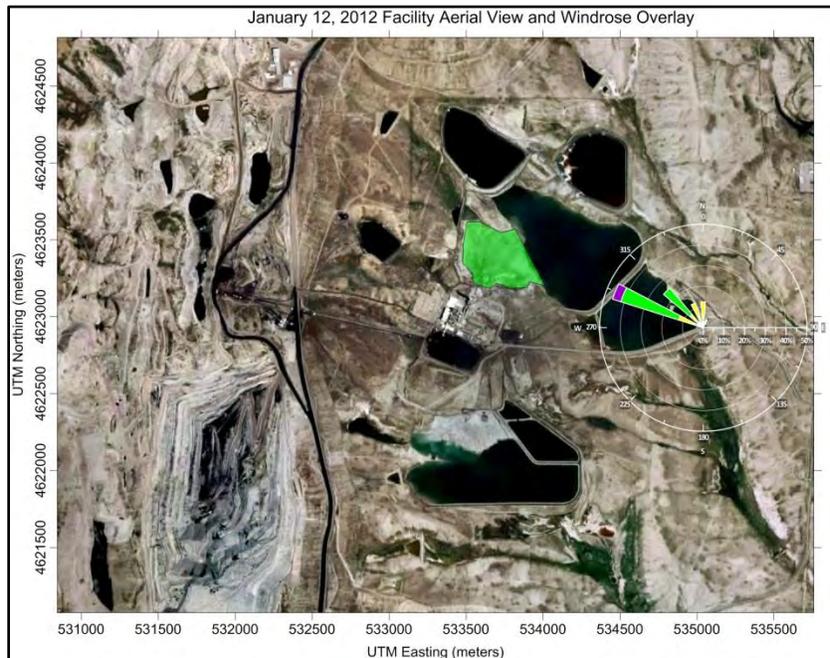
**Figure 3 - PM<sub>10</sub> Concentrations from January 9 through January 12, 2012**

Figure 4 presents a comparison of the windrose for January 12 to a monthly average windrose from January 2009, 2010, and 2011. As indicated by the windrose in Figure 4, the predominant wind directions for the January 12, 2012 wind event were from the west-northwest and northwest. This corresponds to the predominant January wind direction.



**Figure 4 - Comparison of January 12 to Average January Windrose**

To understand the source(s) that are possibly contributing to the PM<sub>10</sub> exceedance, the wind rose for January 12 was superimposed onto a Google Earth image (Figure 5). The location of the wind rose on the image represents the location of the meteorological tower.



**Figure 5 – Facility Map with January 12, 2012 Windrose Overlay**

From Figure 5, the closest upwind particulate sources to the BAM and meteorological tower are the North Ash Pond (highlighted in green), an open pit coal mine located on Naughton's western boundary, and sparsely vegetated land to the west and northwest of the plant site. It is likely that the elevated winds transported particulate matter in the PM<sub>10</sub> size range from the North Ash Pond to the Naughton particulate monitor where the exceedance was measured.

The North Ash Pond is located to the northeast of the power plant and is used to receive coal combustion byproducts from Unit 3 boiler. Originally commissioned in 1974, the North Ash Pond was expanded in 1982, 1987, and most recently modified to a two pond (ash settling and clear water) system in 1994. The ash settling portion has a surface area of 151.5 acres and an approximate storage capacity of 2,100 acre-feet. The clear water portion of the pond has a surface area of 63 acres and an approximate storage capacity of 1,270 acre-feet. There are two dikes associated with the North Ash Pond; the first dike separates the primary settling pond from the clear water pond (Intermediate Dike), while the second dike impounds the clear water pond (Main Dike). The maximum embankment height of the Intermediate Dike is 56 feet and the Main Dike is 52 feet. These dikes are constructed of compacted clay (Figure 6). Water levels are maintained through decant, drop inlet structures, and reuse of the clear water for sluicing ash from the plant.



**Figure 6 – Ash Pond Dike System**

The exposed apron located in the ash settling portion of the pond has an approximate surface area of 50 acres and is comprised of coal combustion byproducts (fly and bottom ash). The byproducts are slurred via pipe from Unit 3 boiler to an open trench on the surface of the previously deposited material in the pond. During the slurring process, the coarser fractions, mostly bottom ash, settles out first with the finer materials being further deposited into the pond. The coarse bottom ash material is periodically removed and deposited alongside the trench to allow flow to continue.

The South Ash Pond is located to the south of the power plant and is used to receive coal combustion byproducts from Units 1 & 2 boiler. Originally constructed in 1974, it was expanded in 1976, 1981, 1987 and most recently in 1994. There are two dikes associated with the South Ash Pond; the Intermediate Dike separates the primary settling pond from the clear water pond, while the Main Dike impounds south and east sides of the ash pond and clear water pond. The ash settling basin has a surface area of about 183 acres, with a storage capacity of 3,754 acre-feet.



The clear water pond has a surface area of 23 acres and an approximate capacity of about 303 acre-feet. The north and west sides of the South Ash Pond is impounded by natural topography. The maximum embankment height of the Main Dike is 71 feet. There is an approximately 3-foot difference in water level between the ash pond and the clear water pond. These dikes are also constructed of compacted clay. Water levels are maintained through decant drop inlet structures, and reuse of the clear water for sluicing ash from the plant.

The exposed apron located in the ash settling portion of the pond has an approximate surface area of 20 acres and is comprised of coal combustion byproducts (fly and bottom ash). The byproducts are slurred via trench from Units 1 & 2 boilers to an open trench on the surface of the previously deposited material in the pond. During the slurring process, the coarser fractions, mostly bottom ash, settles out first with the finer materials being further deposited into the pond. The coarse bottom ash material is periodically removed and deposited alongside the trench to allow flow to continue.

The information provided for both the north and south ash ponds were obtained from the December 9, 2009 *Assessment of Dam Safety Coal Combustion Surface Impoundments (Task 3) Final Report* (Lockheed Martin).

### **Measured Concentration in Exceedance of Normal Fluctuations**

Using 2009 through 2011 10-meter wind speed and PM<sub>10</sub> data collected at Naughton's monitoring station, the monthly arithmetic means were calculated for December, January, and February. This is statistically characteristic of the winter air quality season. The arithmetic mean wind speed for the winter air quality season is 4.76 m/s and 18.3 µg/m<sup>3</sup> for PM<sub>10</sub>.

Table 1 presents hourly wind speed, wind gust, and PM<sub>10</sub> data measured on January 12<sup>th</sup>. Based on Table 1, the average wind speed for January 12 was 6.1 m/s which is higher than the mean winter air quality season average.

**Table 1**  
**Hourly Data Measured at Naughton Meteorological Tower and BAM on**  
**January 12, 2012**

Hour	Wind Speed (m/s)	Wind Gust (m/s)	PM <sub>10</sub> (µg/m <sup>3</sup> )
1:00	4.95	7.56	13
2:00	5.16	8.54	20
3:00	4.55	8.31	24
4:00	3.54	8.22	27
5:00	3.20	7.79	31
6:00	2.32	5.07	24
7:00	4.08	8.78	12
8:00	2.19	4.88	18
9:00	7.87	12.40	222
10:00	6.84	12.77	66
11:00	8.44	12.73	51
12:00	9.70	14.56	371
13:00	7.88	14.14	985
14:00	9.85	15.08	Missing
15:00	9.14	13.48	Missing
16:00	11.32	16.53	985
17:00	8.19	12.40	192
18:00	6.96	10.28	15
19:00	6.31	8.83	Missing
20:00	5.63	8.40	20
21:00	4.60	8.92	36
22:00	6.68	11.41	362
23:00	4.68	9.62	35
24:00	2.42	7.09	18

Three hours (14:00, 15:00 and 22:00) of PM<sub>10</sub> data were invalidated on January 12<sup>th</sup>. From 14:00 to 15:00, MSI personnel were on site to conduct a monthly flow check (Attachment A) and to verify the BAM was functioning properly. Parameters tested during the monthly flow check were temperature, pressure, flow, and a leak test. After the test, the instrument was cleaned and a new roll of filter tape was installed. At 22:00, raw data files show that the PM<sub>10</sub> concentration measured by the BAM was -10 µg/m<sup>3</sup>. This hour was invalidated from the official data record.



Normal historical fluctuations can be described as one standard deviation above or below the arithmetic mean. The standard deviation and mean were calculated from PM<sub>10</sub> data collected at the Naughton PM<sub>10</sub> monitor during the 2009 through 2011 winter air quality season (December, January and February). The upper bound of the standard deviation is 38.5 µg/m<sup>3</sup> and the mean concentration is 18.3 µg/m<sup>3</sup>. The upper bound value is plotted in Figure 3 and shows elevated PM<sub>10</sub> concentrations correlate well with the elevated wind speeds on January 12<sup>th</sup>. This suggests that the wind event has a causal relationship between the specific event and the monitored concentration and shows the January 12<sup>th</sup> event is associated with a measured concentration that is in excess of normal historical fluctuations.

### **Source Compliance**

Per the exceptional event rule, an event cannot be classified as “exceptional” due to a sources non-compliance. A Fugitive Dust Compliance Plan, which provides procedures and guidelines for mitigating fugitive dust at the Naughton Power Plant is available and is presented in Attachment B. In accordance with the fugitive dust compliance plan, plant operators document fugitive dust emissions from the coal pile, dry ash ponds, ash silo area and other areas of the plant during daily inspections. If malfunctions or emissions are observed, the plant operator should initiate appropriate notification, corrective action and provide documentation. Attachments C, D, E, and F provide the documentation of the dust mitigation measures taken for days leading up and on January 12 as required by the Fugitive Dust Compliance Plan.

The Naughton Plant Fugitive Dust Compliance Plan requires that the dirt roads around the plant be watered twice weekly and the paved roads once weekly, weather permitting. Attachment C is compilation of a PM Preventative Maintenance order form (Numbered 26075579) and water truck logs. The order form details documentation for dust suppression on Plant roads for the week of January 8, 2012 through January 14, 2012. The order form and water truck logs indicate road watering activities were conducted on January 11<sup>th</sup> from 8:00 to 11:00 on ponds for Unit 1 and Unit 3 as well as the coal pile and from 14:00 to 15:00 on the ash ponds. Watering was also conducted on January 12<sup>th</sup> from 8:00 to 9:30 on the ash ponds and dirt road and from 10:30 to 11:30 on the south ash pond and coal pile. Another truck log has watering activities being conducted at accessible areas of the ash ponds, all dirt roads, and the coal pile from 14:00 to 16:30 and from 20:30 to 23:00.



Water usage logs show that on January 12<sup>th</sup> 36,000 gallons of water were applied to roads, aprons and ash ponds. This is in addition to the 20,000 gallons applied the previous day (January 11<sup>th</sup>). Water usage logs (Attachment D) also show that a total of 204,000 gallons of water were applied in January. For comparison, no water was applied in January for the years 2009, 2010, or 2011.

Attachment E is the Naughton Operations Environmental Checklist for January 12, 2012. The checklist is completed on a daily basis to document any environmental concerns. The Fugitive Dust section of the checklist points out that the ash silo was operating normally and the coal pile transfer chute was in contact with the pile to limit fugitive dust. The operator that completed the checklist indicated that there was no observed fugitive dust from the coal pile, exposed aprons on ponds or other fugitive dust problems.

Documentation provided in Attachment F are two shift supervisor logs and the Naughton Control Room Operator Log from January 12, 2012. The operator logs documented that the PM<sub>10</sub> concentrations exceeded 150 µg/m<sup>3</sup> at 9:00 (236 µg/m<sup>3</sup>), 13:00 (236 µg/m<sup>3</sup>), 16:00 (384 µg/m<sup>3</sup>), 17:00 (206 µg/m<sup>3</sup>), and 23:00 (360 µg/m<sup>3</sup>). The control room obtains its PM<sub>10</sub> readings from the BAM in the monitoring shelter. Discrepancies between the control room data display and the particulate monitoring site are due to a transmission conversion from the monitoring site and the control room. The higher data readings in the control room are more conservative than those officially recorded at the monitoring site. This unintentional consequence allows for a quicker response when particulate concentrations exceed 150 µg/m<sup>3</sup>. The operator log notes that at 12:00 the mine was called to shut down coal feed and turn off the belt. The log also notes at 14:15 the visit from MSI conducting the flow check and cleaning of the BAM and data will be invalid for the 14:00 and 15:00 observations. Also, on the 16:00 observation that the operator called for an extra excavator operator to man a water truck throughout the night. The 18:00 note indicates the mine feed and belt were restarted. The 00:00 observation for January 13<sup>th</sup> indicated that a water truck was still applying water to accessible areas of the ash ponds, all dirt roads, and the coal pile.

As part of the Fugitive Dust Compliance Plan, dust sealants and suppressants were applied to the north and south ash pond aprons as a proactive measure for dust suppression within the past seven months. Discussions with the vendor indicated that most dust suppressant polymers have an expected life of at least 6 months. If applied in optimal conditions the expected life could be longer. During the spring/summer of 2011, WRR (the dust suppressant contractor) was able to apply dust control sealant to the entire 50 acres of the exposed apron by using a water cannon that was attached to an all-terrain vehicle (ATV). Figure 7 presents photographs showing WRR applying sealant to the ash pond aprons.



**Figure 7 - ATV Sealant Application**

While working on the ash pond apron it has been observed that the ash has the ability to “wick” water to the surface causing “soft” conditions to occur which has caused access issues to certain areas of the ash pond aprons (Figures 8 & 9). During this time precautions need to be taken not to access these areas with larger equipment and only allow smaller/lighter equipment in these areas to conduct maintenance or dust control operations. Even when smaller/lighter equipment is used (Figure 7) there is still a possibility of equipment to get stuck. The photograph on the right shows the ATV leaving ruts in the apron.

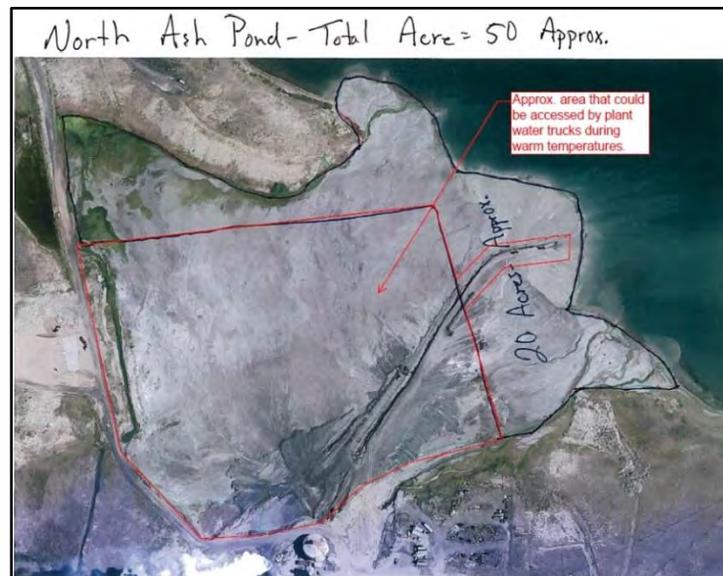


**Figure 8 – Example of Excavator Access Issues (photo taken in 1990)**



**Figure 9 – Example of Water Truck Access Issues (May 2012)**

Even in January, conditions can exist where solar heating during the day and a lack of snow cover causes the ash pond apron to become “soft” which reduces the areas that could be accessed by the plant water trucks. During January 2012, only approximately 30 acres of the north ash pond apron and 4 acres of the south ash pond apron could be accessed due to these conditions. Figures 10 and 11 present an aerial view of the North and South Ash Ponds with an outline of the area accessible by water trucks. Figure 12 presents photos of cones marking the safe zone for water trucks.



**Figure 10 – Accessible Area of North Ash Pond**



**Figure 11 – Accessible Area of South Ash Pond**



**Figure 12 – Cones Mark the Safe Zone for Water Trucks**

Since January 2012, the plant has purchased a new ATV and attached a new water cannon to one of the water trucks that will allow for greater coverage of sealant application on the apron (Figure 13). In addition, the plant has built roads on the north ash pond to allow better access to the apron. Currently the plant has been in the process of working with the Wyoming Department of Water Quality to obtain a permit to cover the exposed aprons. A permit application was sent to the division on November 6, 2012 for their review (Attachment G).



**Figure 12 – New PM Mitigation Equipment**



## Summary

On January 12, 2012, the 24-hour  $PM_{10}$  concentration measured at the  $PM_{10}$  monitor located on the eastern fenceline of the Naughton Power Plant was  $168 \mu\text{g}/\text{m}^3$  which is in exceedance of the NAAQS and WAAQS of  $150 \mu\text{g}/\text{m}^3$ . Wind speeds measured on January 12<sup>th</sup> at the meteorological tower adjacent to the  $PM_{10}$  monitor shelter were above normal historical fluctuations. Consequently, high  $PM_{10}$  concentration measured by the BAM was in excess of normal historical fluctuations.

Dust from fugitive sources at the Naughton plant and from sources west of the plant was entrained in the wind and measured by the particulate monitor. Thus, this event did affect air quality, and is classified as human activity unlikely to be prevented and to recur. Corrective actions were implemented and documented in accordance with the Naughton Fugitive Dust Compliance Plan which meets the criteria set forth by the EPA as not reasonably controllable or preventable. Historical data collected at the Naughton facility show that non-event days are well below the applicable NAAQS/WAAQS and demonstrate that the exceedance would not have occurred but for the event.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Adamson", written over a horizontal line.

Scott Adamson  
Meteorologist/Dispersion Modeler

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Attachment A  
Monthly Flow Check

# MET ONE BETA ATTENUATION MASS MONITOR CALIBRATION / MONTHLY FLOW CHECK SHEET



**Date:** 1/12/12 **Start Time:** 13:05  
**Site Name:** Naughton **Stop Time:** 15:00  
**Sampler Model:** BAM 1020 **Site Location:** Kemmerer  
**Sampler SN:** K18481 **Sampler ID:** PM 10

**Temperature Calibration Device, Model and Serial Number:** Streamline Pro, S040205  
**Pressure Calibration Device, Model and Serial Number:** Streamline Pro, S040205  
**Flow Rate Calibration Device, Model and Serial Number:** Streamline Pro, S040205

**Leak Check Value:** As Found: 0.1 LPM **Leak Check Criteria < 0.5 LPM**  
 As Left: 0.1 LPM

**Temperature Sensor Calibration (°C):**

			Diff.
As Found	-5.9	-5.5	-0.4
As Left			

Temperature = ±2°C

Comments:

**Pressure Sensor Calibration (mmHg):**

	BAM Press. Display:	Ref. Std. Press. Display:	Diff.
As Found	593.0	594.3	-1.3
As Left			

Pressure = ±10 mm Hg

Comments:

**Flow Calibration As Found (lpm):**

BAM Target:	BAM Flow Display:	Ref. Std. Display:	Diff.
15.0			
18.4			
16.7			

**Flow Calibration As Left (lpm):**

15.0			
18.4			
16.7			

Flow = ± 0.1 lpm

Comments:

**Flow Verification As Found (lpm):**

BAM Target:	BAM Flow Display:	Ref. Std. Display:	Diff.
15.0	15.00	14.86	0.94%
18.4	18.30	18.21	0.49%
16.7	16.60	16.53	0.42%

**Flow Verification As Left (lpm):**

15.0			
18.4			
16.7			

Flow = ± 2%

Comments:

**Monthly Maintenance:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Nozzle and vane cleaning      | <input type="checkbox"/> Clean 2.5 Inlet                |
| <input checked="" type="checkbox"/> Leak Check                    | <input type="checkbox"/> Check Error Log                |
| <input checked="" type="checkbox"/> Flow Rate Verification        | <input type="checkbox"/> Download Digital Data Log      |
| <input checked="" type="checkbox"/> Clean Capstan & Pinch Rollers | <input checked="" type="checkbox"/> Replace Filter Tape |
| <input checked="" type="checkbox"/> Clean PM 10 Head              | <input type="checkbox"/> Other _____                    |

Flow Check By: Mike Peterson

Enter monthly verification data into Yellow cells

Attachment B

Fugitive Dust Compliance Plan

NAUGHTON PLANT

PLANT POLICIES AND PROCEDURES MANUAL

SUBJECT	AUTH	CLASS	NO	PAGE
Fugitive Dust Compliance Plan	Environmental	ENV	04	1 of 7
AUTHORIZATION PROVISIONALLY AUTHORIZED BY ENV ENG FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
PLANT MANAGER	EFFECTIVE DATE	LAST REVIEW DATE	NEXT REVIEW DATE	

1 PURPOSE:

1.1 This document formalizes Plant fugitive dust mitigation efforts which serve as Appendix I in the Title V operating permit issued to the Naughton plant by the Wyoming Department of Environmental Quality. The purpose of this policy is to ensuring compliance with applicable State/Federal regulations. Deviation from the intent and provisions of this Plan may result in violations of regulatory limits and Air Quality Operating Permit provisions with associated penalty assessments as well as exposure of employees to health hazards. Deviation may also result in employee disciplinary action.

2 SAFETY AND ENVIRONMENTAL CONSIDERATIONS:

2.1 Fugitive dust emissions at Naughton Plant are subject to standards set forth in the Wyoming Air Quality Standards and Regulations (WAQSR) and the Naughton Plant Air Quality Operating Permit.

2.2. Following are areas/activities that have been historically identified with fugitive dust emissions:

- 2.2.1 Coal pile, coal delivery and other coal pile related operations.
- 2.2.2 Dry portions of ash ponds/bare earth areas.
- 2.2.3 Plant roads.
- 2.2.4 Ash unloading areas.
- 2.2.5 Landfill operations.
- 2.2.6 Miscellaneous activities, i.e. construction, hauling, etc.
- 2.2.7 Pollution control device malfunctions.

**Note:** Emissions from baghouse vents are considered "point source emissions" and are addressed individually in the Air Quality Operating Permit.

Mitigation efforts for each of these areas are addressed in this document.

2.3 Fugitive dust emissions are generally quantified in terms of opacity with an opacity limit of 40% (as read by a certified observer) being relevant to all areas of the plant with the exception of the following areas where lower limits apply: fly ash unloading silo area (20%), mine conveyor weigh scale baghouse (<20%), emergency diesel generators and emergency fire pump (30%), and Unit 3 coal conveyor/gallery baghouse (20%). There is also a permit requirement to limit fugitive dust emissions from general plant activities to 40% opacity, as determined by a certified observer.

**NAUGHTON PLANT**

**PLANT POLICIES AND PROCEDURES MANUAL**

<b>SUBJECT</b> Fugitive Dust Compliance Plan	<b>AUTH</b> Environmental	<b>CLASS</b> ENV	<b>NO</b> 04	<b>PAGE</b> 2 of 7
<b>AUTHORIZATION</b> PROVISIONALLY AUTHORIZED BY ENV. ENG. FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
<b>PLANT MANAGER</b>	<b>EFFECTIVE DATE</b>	<b>LAST REVIEW DATE</b>	<b>NEXT REVIEW DATE</b>	

- 2.4 Chapter 2 of the WAQSR details the applicable ambient PM<sub>10</sub> (respirable particulate) standards. The applicable PM<sub>10</sub> standard (as measured at the monitoring site located east of the north ash pond) is 150 micrograms per cubic meter, averaged over 24 hours, and may not be exceeded more than once per calendar year.
- 2.5 Appropriate corrective action, as determined by the Shift Supervisor, will be initiated immediately to avoid an exceedance of the 24-hour standard. As the standard is based upon a 24-hour average, a short-term incident involving a large concentration of dust can cause a violation of the 24-hour average. All corrective action will be documented. If no corrective action is possible or practicable, this will also be documented.

**3 TRAINING AND RESPONSIBILITY:**

- 3.1 The Operations Shift Supervisor on duty is responsible for initiation of fugitive dust corrective measures and providing detailed documentation of all exceedances of the PM<sub>10</sub> and fugitive dust opacity standards and dust suppression activities to the environmental personnel.
- 3.2 The Operations Superintendent, under the direction of the Plant Manager, is responsible for ensuring that Plant operations are conducted such that fugitive dust emissions are mitigated in a proactive as well as reactive manner.
- 3.3 The Maintenance Superintendent is responsible for ensuring that all maintenance activities are conducted in accordance with the provisions of this document and other applicable regulatory requirements.
- 3.4 The Plant Manager bears ultimate responsibility for compliance with all regulatory requirements.
- 3.5 Plant environmental personnel provide regulatory guidance/oversight and administer the Plant Environmental Management System.
  - 3.5.1 A report documenting compliance or non-compliance with the provisions of this permit is prepared by the Environmental Engineer semi-annually and certified as being true and accurate, under penalty of law, by the Plant Manager.
- 3.6 Equipment Operators will operate the water truck as directed by the Shift Supervisor. Operations personnel are responsible for the operation of the dust suppression system and water cannons.
- 3.7 Maintenance personnel will maintain dust suppression related equipment (i.e., water cannons, dust suppression systems, baghouses, etc.) in accordance with the Naughton Air Quality Operating Permit and will provide documentation of related maintenance activities to the environmental personnel. Documentation of maintenance activities, equipment malfunctions, etc. is required by the Title V Air Quality Operating Permit.

**NAUGHTON PLANT**

**PLANT POLICIES AND PROCEDURES MANUAL**

<b>SUBJECT</b> Fugitive Dust Compliance Plan	<b>AUTH</b> Environmental	<b>CLASS</b> ENV	<b>NO</b> 04	<b>PAGE</b> 3 of 7
<b>AUTHORIZATION</b> PROVISIONALLY AUTHORIZED BY ENV. ENG. FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
<b>PLANT MANAGER</b>	<b>EFFECTIVE DATE</b>	<b>LAST REVIEW DATE</b>	<b>NEXT REVIEW DATE</b>	

- 3.8 Various periodic inspections and observations, as required by the Title V Air Quality Operating Permit will be performed under the direction of the environmental personnel.
- 3.9 The day shift Operations Supervisor is responsible for ensuring that water truck use is properly documented and ensuring that suitable maintenance of the water truck is performed.

**4 GUIDELINES AND PROCEDURES:**

**4.1 Normal Operations**

Mitigation of fugitive dust emissions and associated corrective action is largely dependent upon the source of the dust. Appropriate and effective mitigation is contingent upon the discretion and judgment of the shift supervisor, particularly during low ambient temperature and/or high wind periods. All information regarding the fugitive emission source and reason for deviation from this Fugitive dust Compliance Plan as well as resulting corrective actions will be documented by the shift supervisor and forwarded to the environmental department.

The following sections give general guidelines to control fugitive emissions with respect to major plant sources.

**4.1.1 Coal Pile**

Persons observing fugitive dust emissions from the coal pile should initiate appropriate corrective action. At a minimum, the Shift Supervisor should be notified so that appropriate corrective action can be initiated, documented and reported to regulatory agencies, when necessary. Wyoming DEQ/Air Quality Division has specifically requested that heavy equipment operators operate coal pile equipment at a speed such that dust generated from this activity does not exceed regulatory limits. Depending upon conditions, coal pile activity may need to be reduced or terminated as determined by the Shift Supervisor.

**4.1.1.1 Scalants/Suppressants**

As the coal pile physical boundary is historically transient in nature, it is impractical to apply other than a periodic dust suppressant/sealant to the portions of the pile that remain relatively undisturbed, i.e. the sides, rear and aprons of the pile. Sealants will be applied to these areas when necessary.

**4.1.1.2 Water Cannons**

Stationary water cannons are mounted in positions designed to give coverage of the coal pile during prevailing west-to-east wind events. A portable, wheel mounted, cannon is also available for use when and where needed.

**NAUGHTON PLANT**

**PLANT POLICIES AND PROCEDURES MANUAL**

SUBJECT	AUTH	CLASS	NO	PAGE
<b>Fugitive Dust Compliance Plan</b>	<b>Environmental</b>	<b>ENV</b>	<b>04</b>	4 of 7
AUTHORIZATION PROVISIONALLY AUTHORIZED BY ENV ENG FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
PLANT MANAGER	EFFECTIVE DATE	LAST REVIEW DATE	NEXT REVIEW DATE	

During periods of winds exceeding 25 mph and when temperatures are above 40F, the coal pile water cannon system automatically activates. Additionally, the Control Room Operator may, as directed by the Shift Supervisor, activate the coal pile water cannon system during dusty conditions at any other time when temperatures are above 40F. Cannons should remain activated until winds and/or dusty conditions subside as determined by the Shift Supervisor.

**4.1.1.3 Surfactants/Wetting Agents**

Surfactants/wetting agents are routinely applied to the in-coming coal stream. During **normal operation** this system can remain in service when ambient temperatures are above 20F (per historical operating experience). During temperatures below 20F or if the dust suppression system malfunctions, these instances should be documented and reported to the environmental personnel and visual observations taken.

**4.1.1.4 Stacker Chute**

Fugitive emissions can occur during coal delivery when the stacker chute is elevated from the coal pile proper. During **normal operation**, the chute skirting should be in contact with the pile whenever coal is being delivered.

If fugitive dust emissions from stacker chute operations are observed, the Shift Supervisor or Control Room Operator should be contacted so that corrective actions can be initiated and documented.

**4.1.2 Ash Ponds/Bare Earth Areas**

Dry portions of ash ponds and bare earth areas should be reclaimed, kept covered with water, or treated with a sealant/surfactant.

Fugitive dust emissions from ash ponds and bare earth areas should be documented on the daily Operations Environmental Checklist and reported immediately to the Shift Supervisor so that corrective action and regulatory reporting can be initiated, as required by the Operating Permit.

Corrective action may include, but is not limited to, reclamation, water applications, termination of activities causing fugitive emissions, and application of sealants/suppressants. The Operations Superintendent is responsible for ensuring that Plant operations are conducted such that fugitive dust emissions are mitigated in a proactive as well as reactive manner as required by the Operating Permit.

**NAUGHTON PLANT**

**PLANT POLICIES AND PROCEDURES MANUAL**

<b>SUBJECT</b> Fugitive Dust Compliance Plan	<b>AUTH</b> Environmental	<b>CLASS</b> ENV	<b>NO</b> 04	<b>PAGE</b> 5 of 7
<b>AUTHORIZATION</b> PROVISIONALLY AUTHORIZED BY ENV ENG FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
<b>PLANT MANAGER</b>	<b>EFFECTIVE DATE</b>	<b>LAST REVIEW DATE</b>	<b>NEXT REVIEW DATE</b>	

**4.1.3 Plant Roads**

Unpaved roads will receive an application of a dust suppressant/sealant on an as-needed basis.

**4.1.4 Water Truck**

Plant roads will receive a water application with the water truck on an as-needed basis as determined by the Shift Supervisor, in order to mitigate dusting. During unusually dusty periods, and in areas where the potential for dusting may be severe, roads will be watered as needed to achieve appropriate dust abatement.

Logs of all water truck related dust suppression activities should be kept in the truck cab. Equipment Operators should document **any** use of the water truck with respect to dust suppression activities. The Station Support Supervisor is responsible for ensuring that the provisions of this paragraph are adhered to.

**4.1.5 Ash Unloading Operations**

Ash unloading activities should be conducted such that emissions from truck beds, silo chutes and vents, etc. are minimal and do not exceed the 20% opacity limit prescribed in the Operating Permit. Loading activities should be moderated or curtailed and truck speeds reduced, as necessary, in order to prevent exceedances of the emissions standard. Persons observing dust emissions resulting from ash loading activities should notify the Shift Supervisor immediately.

At no time should ash unloading related activities result in emissions exceeding 20% opacity. Provisions of the Naughton Air Quality Operating Permit require that any observed emissions from the ash unloading silo and/or baghouse be reported to the environmental personnel and Shift Supervisor and that corrective action/maintenance be initiated immediately.

Fugitive emissions observed from ash silo operations should be logged on the daily Operations Environmental Checklist and reported to the Shift Supervisor and environmental personnel so that corrective action and regulatory reporting can be initiated. Certain levels of fugitive dust emissions require immediate reporting to regulatory agencies; prompt reporting to environmental personnel is critical to maintaining regulatory compliance.

**4.1.6 Landfill Operations**

Landfill operations often result in fugitive emissions during hauling, compacting and covering activities. Operators should mitigate emissions by reducing equipment speed, curtailing activities during windy conditions, utilizing the water truck, etc.

**PLANT POLICIES AND PROCEDURES MANUAL**

SUBJECT	AUTH	CLASS	NO	PAGE
<b>Fugitive Dust Compliance Plan</b>	<b>Environmental</b>	<b>ENV</b>	<b>04</b>	6 of 7
AUTHORIZATION PROVISIONALLY AUTHORIZED BY ENV ENG FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
PLANT MANAGER	EFFECTIVE DATE	LAST REVIEW DATE	NEXT REVIEW DATE	

4.2 **Monitoring and Measurement**

Plant operators should document fugitive dust emissions from the coal pile, ash ponds, ash silo area, and other areas of the plant observed during their daily inspections on the Operations Daily Environmental Checklist. Upon observation of emissions/malfunctions, the operator should initiate appropriate notification (Shift Supervisor, environmental personnel, etc.), corrective action (work notifications, etc.) and provide documentation. Shift Supervisors should also provide documentation to plant environmental personnel.

As all employees share the responsibility for regulatory compliance and procedural conformance, any employee observing fugitive dust emissions or excessive dusting conditions should notify the Shift Supervisor and/or environmental personnel immediately.

Operation and maintenance of the continuous PM<sub>10</sub> monitoring system is conducted by the Control Emissions Process Team. System maintenance is detailed in the Environmental Monitoring QA/QC Plan. A PM<sub>10</sub> signal (1EV100) is provided to the control room for data and alarming purposes. The Honeywell computer will initiate an alarm when the PM<sub>10</sub> value exceeds 150 ug/m<sup>3</sup> on an hourly average. Although the applicable regulatory limit is based on a 24-hour average, it is imperative that appropriate corrective action is initiated, and documented, when the hourly average alarms so that the 24-hour average limit is not exceeded. If, during a fugitive dust incident, normal corrective action can not be implemented due to low ambient temperature, equipment malfunction, etc., such information should be documented in detail and provided to environmental personnel.

Opacity observations of the coal pile area, ash ponds area, baghouses and ash silo area are conducted, at least weekly, normally by environmental personnel in conjunction with the weekly Naughton Operating Permit inspection and are recorded on the Naughton Operating Permit inspection log.

4.3 **Maintenance and Preventive Action**

Breakdown/malfunction of any equipment used for fugitive dust suppression or fugitive dust emissions monitoring purposes (water truck, water cannons, dust suppression system, PM<sub>10</sub> monitoring system, baghouses, etc.) should initiate immediate corrective action via an emergency work notification and callout, if necessary. Malfunctions warrant regulatory reporting as mandated by the Operating permit. (See Sec. 4.4). All malfunctions must be communicated promptly to environmental personnel so that appropriate documentation/reporting can occur.

The station support supervisor should ensure that appropriate preventive maintenance is performed on the water truck, water cannons, dust suppression system, etc. and that malfunctions/breakdowns of such equipment is documented and provided to environmental personnel as required by the Operating Permit.

NAUGHTON PLANT

**PLANT POLICIES AND PROCEDURES MANUAL**

SUBJECT	AUTH	CLASS	NO	PAGE
<b>Fugitive Dust Compliance Plan</b>	<b>Environmental</b>	<b>ENV</b>	<b>04</b>	<b>7 of 7</b>
AUTHORIZATION PROVISIONALLY AUTHORIZED BY ENV ENG FOR IMMEDIATE IMPLEMENTATION PENDING FORMAL APPROVAL PROCESS	October, 1996	August, 2007	June, 2012	
PLANT MANAGER	EFFECTIVE DATE	LAST REVIEW DATE	NEXT REVIEW DATE	

4.4 **Reporting and Recordkeeping**

Quarterly PM<sub>10</sub> monitoring reports are prepared by environmental personnel and submitted to Wyoming DEQ, Air Quality Division, prior to the end of the first month following the completion of each quarter. The Naughton Air Quality Operating Permit mandates a semi-annual report detailing and certifying compliance with the requirements regarding visual observations, maintenance of dust collection/suppression systems and deviations from the provisions of the Operating Permit. Additionally, annual reporting is provided to the DEQ and EPA wherein the Plant Manager is required to certify compliance or non-compliance with all of the provisions of the Title V Air Quality Operating Permit. Environmental personnel normally prepare and submit these reports.

Prompt reporting of non-compliance episodes and immediate initiation of corrective action is essential to the successful implementation of this Procedure, compliance with the provisions of the Naughton Air Quality Operating Permit and conformance with the ISO14000 EMS. All records will be kept for a minimum of 5 years. Water truck logs to be retained for one year.

5 **REFERENCES**

- 5.1 Naughton Plant Title V/Section 30 Air Quality Operating Permit
- 5.2 Wyoming Air Quality Rules and Regulations

**Attachment A**

**Water Truck Log**

**(All dust suppression related activities must be logged)**

Date	Start Time	End Time	Operator	Area Watered/Comments

*When printed, this document is uncontrolled and for reference only*

Attachment C

Preventative Maintenance Order Form



**Order # 26075579**  
**PM Preventive Maintenance**  
**Priority # 3**

J

**Order Text: WEEKLY FUGITIVE DUST COMPLIANCE PM EOs**

<b>Func Loc:</b> T-1535-0-SS-RAG	<b>Equipment:</b> GROUNDS/ROADS
<b>Assembly:</b>	<b>Tech ID #:</b> NOGR
<b>Plan Desc:</b> WEEKLY FUGITIVE DUST COMPLIANCE PM	<b>PM Plan #:</b> NOGR001

Created Date:12/26/2011

Basic Start Date:01/12/2012

Oper	Work Center	Operation Description	No.	Total Hrs.	Compl.
0010	EQ-NA-EO	WEEKLY FUGITIVE DUST COMPLIANCE PM EOs	1	6.0	Y / N
<b>Oper</b>	<b>Operation Long Text</b>				

0010 WEEKLY FUGITIVE DUST COMPLIANCE PM EOs  
The Naughton Plant Fugitive Dust Compliance Plan requires that the dirt roads around the plant be watered twice weekly and the paved roads once weekly (ambient temperature permitting).

Please perform this work, document it on this form and in the log book and return this form to the Environmental Engineer upon completion.  
Thank you.

Week of: 1-8 to 1-14

Area	Date Completed	Action Taken	Weather Condition	Operator Name
Dirt Roads	<u>1-11-12</u>	<u>watered</u>	<u>windy</u>	<u>W. Stubbbs</u>
1ST time/week	<u>1-11-12</u>	<u>watered</u>	<u>Windy</u>	<u>W. Stubbbs</u>
2nd time/week	<u>1-12-12</u>	<u>watered</u>	<u>Windy</u>	<u>W. Stubbbs</u>
Paved Road	<u>1-11-12</u>	<u>watered</u>	<u>Windy</u>	<u>W. Stubbbs</u>

**Order Long Text:**

WEEKLY FUGITIVE DUST COMPLIANCE PM EOs

The Naughton Plant Fugitive Dust Compliance Plan requires that the dirt roads around the plant be watered twice weekly and the paved roads once weekly (ambient temperature permitting).

Please perform this work, document it on this form and in the log book and return this form to the Environmental Engineer upon completion.  
Thank you.



**Order # 26075579**  
PM Preventive Maintenance

Completion Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Jobsite Cleaned Up

Completed By Wayne Stubbs Employee # 09207 Date 1-13-12  
Reviewed By [Signature] Date 1/18/12

Enviro & Enviro

Attachment A

Water Truck Log

(All dust suppression related activities must be logged)

Date	Start Time	End Time	Operator	Area Watered/Comments
1-11-12	1400	1500	W. Stubbs	Ash Ponds.
1-12-12	0800	0930	" "	Ash Ponds + Dirt Roads.
1-17-12	10:30	11:30	Sudonick	South Ash Pond + Coal P. 1k 3 Loads

When printed, this document is uncontrolled and for reference only

# Attachment A

## Water Truck Log

(All dust suppression related activities must be logged)

Date	Start Time	End Time	Operator	Area Watered/Comments
1-12-12	14:00	16:30	SUDONICK	Accessible areas of Ash Ponds, All Dirt Roads, Coal Pile.
1-12-12	20:30	23:00	SUDONICK	Accessible areas of Ash Ponds, All Dirt Roads, Coal Pile.
1-13-12	2:00	4:00	Foster	Accessible areas of ash ponds, Roads, <sup>Dirt</sup> Coal Pile

When printed, this document is uncontrolled and for reference only

Attachment D

Water Usage Log

2012		
Date	# Trucks	Total Gallons
1/7/2012	0	0
1/11/2012	5	20000
1/12/2012	9	36000
1/13/2012	22	88000
1/16/2012	3	12000
1/18/2012	11	44000
1/30/2012	1	4000
Total		204,000

2011		
Date	# Trucks	Total Gallons
1/1 - 31/2011	0	0

2010		
Date	# Trucks	Total Gallons
1/1 - 31/2010	0	0

2009		
Date	# Trucks	Total Gallons
1/1 - 31/2009	0	0

Attachment E

Naughton Operations Environmental Checklist

# NAUGHTON OPERATIONS ENVIRONMENTAL CHECKLIST

Must be completed daily and all questions must be answered.

Operator: Hatch

Shifter Signature: [Signature]

Date: 1-12-12

ITEM	STATUS	COMMENTS	W/O # - Corr. Action
<p style="text-align: center;"><b>Sewer Treatment Facility</b></p> <p>Aerators operating - See OPR-26 Sewage Aeration Sys Checks</p>	<p>Circle status</p> <p><input checked="" type="radio"/> Yes / <input type="radio"/> No</p>		
<p style="text-align: center;"><b>Ash Ponds</b></p> <p style="padding-left: 40px;">Oil on ponds? Yes / <input checked="" type="radio"/> No</p> <p style="padding-left: 40px;">Oil booms present? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p style="padding-left: 40px;">Oil booms in good condition? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p><b>Are there any floating solids or foam in other than trace amounts in the discharge?</b> (Inspect for unusual signs that might indicate chemicals or high concentrations may have been discharged from the pond, notify Environmental Department.)</p> <p>Yes / <input checked="" type="radio"/> No</p> <p><b>Indications of leakage/breaching/failure?</b> (Inspect top, face and toe of dikes for signs of cracks, soil movement, erosion, rodent burrows and woody vegetation. Document location and notify Shift Supervisor and Environmental Department.)</p> <p>Yes / <input checked="" type="radio"/> No</p> <p><b>Seepage around weirs?</b> (Check Outfalls 001 and 002 for any seepage around or under the weirs. Contact Environmental Department if any seepage identified.)</p> <p>Yes / <input checked="" type="radio"/> No</p> <p><b>North Ash pond aerators/floodlight functioning?</b> <input checked="" type="radio"/> Yes / <input type="radio"/> No / <input type="radio"/> N/A (Winter only - If Summer, indicate in comments section.)</p>			
<p style="text-align: center;"><b>FGD Ponds</b></p> <p><b>Bird Avert system normal?</b> (System should activate when driving around pond. radar bar should be turning.)</p> <p><input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p><b>Birds on pond?</b> (Notify Environmental Department of any rescued/dead/ rehabilitated birds (prior to release) - Provide detailed documentation in logbook.)</p> <p>Yes / <input checked="" type="radio"/> No</p> <p><b>Indications of leakage/breaching/failure?</b> (Inspect top, face and toe of dikes for signs of cracks, soil movement, erosion, rodent burrows and woody vegetation. Document location and notify Shift Supervisor and Environmental Department.)</p> <p>Yes / <input checked="" type="radio"/> No</p> <p><b>Liner in good shape?</b> (Check for rips and tears. Notify Env. Department immediately if any identified.)</p> <p><input checked="" type="radio"/> Yes / <input type="radio"/> No</p>		Froze over	
<p style="text-align: center;"><b>Oil Vessels</b></p> <p><b>Leaks or spills on or around tanks / transformers?</b></p>	<p>Yes / <input checked="" type="radio"/> No</p>		

ITEM	STATUS	COMMENTS	W/O # - Corr. Action
<p><b>Storm Water</b></p> <p>Secondary containment devices checked for oil sheen? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Is there any potential for storm (runoff) water to be contaminated at the landfill, reclaimed pond, boneyard, switchyard (outside of fence) or scrap yard? Yes / <input checked="" type="radio"/> No</p> <p>Any signs of erosion? (Document location and notify Env. Department.) Yes / <input checked="" type="radio"/> No</p> <p>Is there an potential for leaks or spills to occur in the landfill, reclaimed pond, boneyard, scrapyard, or outside of switchyard fence from stored equipment or parked vehicles that could leak oil or other fluid in these sensitive areas? Yes / <input checked="" type="radio"/> No</p> <p>Do storm water transfers from the secondary containment devices need to be made? (i.e. unlocking drains / lifting drain plugs. Notify Environmental Department before any transfer made.) Yes / <input checked="" type="radio"/> No</p>			
<p><b>Landfill</b></p> <p>Gate locked and secure? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Litter outside fenced area? Yes / <input checked="" type="radio"/> No</p>			
<p><b>Fugitive Dust</b></p> <p>Ash silo operating normally? (No blowing/exhausting dust, fly ash on road, etc.) <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Coal pile transfer chute contacting pile? (Chute skirting should be in contact with coal pile.) <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Dust from coal pile? Yes / <input checked="" type="radio"/> No</p> <p>Dust from exposed aprons on ponds? Yes / <input checked="" type="radio"/> No</p> <p>Other fugitive dust problems? (Roads, soil piles, landfill, etc.) Yes / <input checked="" type="radio"/> No</p>			

Other Environmental concerns?: \_\_\_\_\_

Any non-conformance must be addressed with work order/correction action. Please contact Env. Engineer (Ext. 4365) regarding abnormal conditions. In addition, please provide detailed comments and work order #s in spaces provided.

Environmental Dept. Review Initial:   *jm*   Date:   1/31/12

Attachment F

Shift Supervisor Log & Naughton Control Room Operator Log

## SHIFT SUPERVISOR LOG NAUGHTON PLANT

Date: 1/12/12

Shift: Days

Start: 01/12/12 06:00 (Thu)

End: 01/12/12 18:00 (Thu)

Shift Supervisor: Nishi

	Unit-1	Unit-2	Unit-3
CRO	Haws	Haws	Webster
PO/JMO	Larsen	Halls	Backman
Outside	Hatch		
Scrubber	Anglen	Shift Mechanic :	<span style="border: 1px solid black; padding: 2px;">Moretti</span>
Lab	Christensen	Shift Electrician :	<span style="border: 1px solid black; padding: 2px;">Bishop</span>
Eq Op	Sudonick		

Employee's Absent & Coverage:

	Cover Person:	<span style="border: 1px solid black; width: 100%; height: 15px;"></span>
	Cover Person:	<span style="border: 1px solid black; width: 100%; height: 15px;"></span>
	Cover Person:	<span style="border: 1px solid black; width: 100%; height: 15px;"></span>
	Cover Person:	<span style="border: 1px solid black; width: 100%; height: 15px;"></span>
	Cover Person:	<span style="border: 1px solid black; width: 100%; height: 15px;"></span>

Readings are at 06:00.

Condensate Tank Levels (inches):

Tank 1-1	247
Tank 1-2	247
Tank 2-1	243
Tank 2-2	248
Tank 3-1	264.2
Tank 3-2	264.4
Tank 3-3	168.7

Scrubber Readings:

A side diff psi	5.5
A side inlet psi	6.5
B side diff psi	4.4
B side inlet psi	5.1
SO2	0
Sulfur Tank Level	45

	Unit-1	Unit-2	Unit-3
Load	158	205	347
Opacity	12.0	5.4	
NOx	0.6	0.2	0.4
Boiler pH	9.5	9.2	9.1
	Condensate Filter Diff. Pressure		1.5

Net MW's  
6-min  
Instantaneous  
Drum

### Environmental Log/Checks:

Air:		Other:	
Opacity Exceedances :	No	Spills Reported :	No
SO2 Exceedances :	No	FGD Pond pH Issues :	No
NOx Exceedances :	No	Bird Avert Issues :	No
CEM Issues :	No	Ash Pond Issues :	No
PM10 Alarms :	No	Stormwater Issues :	No
CAM Excursions :	No	Other Env Problems :	No
Fugitive Dust Issues :	No		
Baghouses Off/Issues :	No		
Benetech System Off :	No		

If any Env. checks are "Yes", please explain:

### Restrictions/Outages

Unit #	Description/Notes	Net MW's Avail.	Time Off/On
1	Valves wide open	158	
2	None	206	0600-0818
2	2-4 mill trip due to loss of flame scanners	154	0818-0917
2	None	206	
3	None	330	

### Operational Notes

Unit-1	1-1 APH guide bearing oil leak
Unit-2	2-1 ID fan inboard bearing oil leak

Unit-3  
Common

Hydros off line for repairs to the 54 & 18" valves, controlling river level with the east spillway gate
---

Time	Notes
------	-------

\*\*\*\*\* 1/12/12 \*\*\*\*\*

06:00	When a hydro trips, the person who goes up to put it back on line needs to check the AC breaker in the communication building. It has been tripping
06:01	#1 Aux steam root valve is throttled up on the 8th floor.
06:02	#2 Unit, the sofa dampers are in hand on the boiler as well as the top
07:00	Held daily tailboard meeting. Discussed MOC on water treatment 1 & 2 scrubber. Discussed flame scanners on unit 2. Discussed 3-5 coal mill repairs
08:18	Unit 2 2-4 coal mill tripped when Don pulled the RF & LF scanners on #4 elevation. LR tripped when the other 2 were out. Dropped down to 154 net.
08:45	Unit 1 boiler A & B clean C light and spoty thicker around 5 & ^. Unit 2 boiler is clean. Unit 3 boiler 3R, A row 1,4,7,10 dirty B row 1,5,9,13 dirty, C row 1,2,4,7,10 dirty.
09:17	2-4 cleared back to dispatcher did not need load at 154 net.
09:19	1-1 ASP out to mechanics to replace with new pump.
10:00	Lab ran a LOI on unit 2 for Kurt Ashworth and it is 1.1 %
10:01	PM10 in from 0900-1000 at 236
13:00	PM 10 in from 1200-1300 at 384
14:15	PM10 is being looked at by contractor from 1300-1500. Next valid reading is at 1600
14:27	1-1 ASP will be out until Friday sometime.
16:00	Made callout for extra EO to man the water truck through the night. Jared Foster will be out at 0100 and Levie will be stay over until 0100.
16:06	PM10 at 995
16:38	Still burning gas on unit 1 due to high SO2
17:03	PM10 at 206

## SHIFT SUPERVISOR LOG NAUGHTON PLANT

Date: 1/12/12

Shift: Nights

Start: 01/12/12 18:00 (Thu)

End: 01/13/12 06:00 (Fri)

Shift Supervisor: Small

	Unit-1	Unit-2	Unit-3
CRO	Garrett	Garrett	Hillstead
PO/JMO	Jones/Burdess	Anderson	Sheets
Outside	Lewis		
Scrubber	Auger/Combs	Shift Mechanic :	Fonnesbeck
Lab		Shift Electrician :	
Eq Op	Lundell		

Employee's Absent & Coverage:

	Cover Person:	

Readings are at 18:00.

Condensate Tank Levels (inches):

Tank 1-1	247
Tank 1-2	247
Tank 2-1	238
Tank 2-2	245
Tank 3-1	264.1
Tank 3-2	264.4
Tank 3-3	155.3

Scrubber Readings:

A side diff psi	5.5
A side inlet psi	6.7
B side diff psi	4.5
B side inlet psi	5.5
SO2	0
Sulfur Tank Level	45

	Unit-1	Unit-2	Unit-3
Load	159	205	356
Opacity	11.6	5.5	
NOx	0.6	0.2	0.4
Boiler pH	9.4	9.2	9.1
	Condensate Filter Diff. Pressure		1.6

Net MW's  
6-min  
Instantaneous  
Drum

### Environmental Log/Checks:

Air:		Other:	
Opacity Exceedances :	No	Spills Reported :	No
SO2 Exceedances :	No	FGD Pond pH Issues :	No
NOx Exceedances :	No	Bird Avert Issues :	No
CEM Issues :	No	Ash Pond Issues :	No
PM10 Alarms :	No	Stormwater Issues :	No
CAM Excursions :	No	Other Env Problems :	No
Fugitive Dust Issues :	No		
Baghouses Off/Issues :	No		
Benetech System Off :	No		

If any Env. checks are "Yes", please explain:

### Restrictions/Outages

Unit #	Description/Notes	Net MW's Avail.	Time Off/On
1	Valves wide open	158	
2	None	206	
3	None	330	

### Operational Notes

Unit-1	1-1 APH guide bearing oil leak
Unit-2	2-1 ID fan inboard bearing oil leak

Unit-3  
Common

Hydros off line for repairs to the 54 & 18" valves, controlling river level with the east spillway gate

Time | Notes

\*\*\*\*\* 1/12/12 \*\*\*\*\*

18:00 When a hydro trips, the person who goes up to put it back on line needs to check the AC breaker in the communication building. It has been tripping

18:01 #1 Aux steam root valve is throttled up on the 8th floor.

18:02 #2 Unit, the sofa dampers are in hand on the boiler as well as the top

19:00 Held Crew Meeting, Read a portion of the Safety and Operating Rules Handbook.

22:00 Operators a getting a lot of clinkers out of the north economizer hoppers on #1 unit. They don't seem to be caused by moisture, it's more like melted ash.

\*\*\*\*\* 1/13/12 \*\*\*\*\*

00:00 While monitoring the PM10, the particulate was up to about 360 for the hour of 22:00-23:00, but no alarm came in. Levi was out watering the roads and as far onto the ash as he dared.

02:20 PM10 alarm never did come in, we will moniotr it closely and write a notification if it does it again

03:50 #1 Boiler was a little dirty up top, but it cleaned up, a slight buildup on A and B rows and some buildup on C row, but it was coming off. Unit #2 boiler was fairly clean on top and the walls. #3 Unit was spotty on A row and runny on B and C row.

04:06 PM10 has not spiked since the 22:00-23:00, the EO's have kept all the dirt roads wet and also the coal pile edges. The winds have been around 5-6 MPH from 00:00 to about 04:00. They are starting to pick up to around 20 MPH.

04:27 The EO's have also watered around the south ash pond as well.

05:05 PM10 just came into alarm, Talked to Jared and he said it was coming from the north ash pond, but everything that can be reached with a water truck has been watered and there is now a layer of ice on it.

# Naughton Control Room Operator Log

Control Room Oper: Luett  
Shift Supervisor: Small  
Plant Operator: Jones / Buresh  
Scrub. Operator: \_\_\_\_\_

Date: 1-12-12-12  
(Graveyards) / Days (Circle)  
(U-1) U-2 U-3

Unit Load 158 MW Net CBD \_\_\_\_\_ Turns Cond. Tanks - 247 - 247 -  
Environmental Exceedances: \_\_\_\_\_ Drum pH 9.5

Restrictions: \_\_\_\_\_ MW Reasons: V.W.O

Restrictions: \_\_\_\_\_ MW Reasons: \_\_\_\_\_

Equipment Problems: #1 air comp O/S  
1-2 Cond pump - Emerg ase - much Seal  
and steam V10 8th floor

Shift Details: @158 not Gas burn IN HI SO2  
0130 - Shut down mine belt will have coal later

Tagouts Issued	Time Issue	Time Returned
----------------	------------	---------------

Notifications Written: \_\_\_\_\_ W/O # \_\_\_\_\_

Boiler Condition:  
Superheat Section: Blow 2s, 4s, 5R+10s APHs + Rotaries  
A Good Shape Blow all X' Z  
B Dirty but Cleans up Blow all  
C Build up 4 inches Blow all

Unit (1) 2 3 (Circle) Date: 1-12-12 CRO / PO Signature Luett

# Naughton Control Room Operator Log

Control Room Oper: Haws  
 Shift Supervisor: Nishi  
 Plant Operator: Larsen  
 Scrub. Operator: \_\_\_\_\_

Date: 1-12-12  
 Graveyards / Days (Circle)  
U-1 U-2 U-3

Unit Load 158 MW Net CBD \_\_\_\_\_ Turns Cond. Tanks - 246-247 -  
 Environmental Exceedances: \_\_\_\_\_ Drum pH 9.50

Restrictions: \_\_\_\_\_ MW Reasons: \_\_\_\_\_  
 Restrictions: \_\_\_\_\_ MW Reasons: \_\_\_\_\_

Equipment Problems: \_\_\_\_\_  
#1 Air Compressor out of Service  
1-2 Cond Pump - Emerg. use - mech Seal  
Aux. Steam V/0 at 8th Floor  
#1-1 Ash Sluice Pump OKS  
 River - 88  
 Reserv. 7229.85  
Printed Alarm Screens

Shift Details: Gas in for SO2 9:00 to 100 - PM-10 in 236  
7:41 - NOx cal Failed I & C re-calibrating 8:20 Back  
10:30 - J. Kalhaca working Circ Water pH meter - 11:37 done  
11:20 - Mine Called - will send Mi - Heather emptied  
- Buckets & Sampler is running  
12:00 - PM-10 in @ B84 - Called Mine - shut down feed <sup>twice</sup> - Turned off Belt  
13:52 - PM-10 at 996 - J. Kalhaca working on Circ Water pH meter  
14:15 - Contractor working on PM-10 said that it was out from 1300 to 1500  
- Hourly read for 1400 & 1500 won't be valid but the 1600 one is  
16:20 - JR sent Lev. to fill in feeders then come right back down  
- PM-10 still in @ 17:30 206 going down  
17:30 Gas Guns still in for SO2 - attempted to take out a few times  
But SO2 went up to 1.20  
 Tagouts Issued \_\_\_\_\_ Time Issue \_\_\_\_\_ Time Returned \_\_\_\_\_  
1-1 Ash Sluice Pump - 8:30  
18:05 PM-10 out - called mi. re they have about 1200T  
of High - started mine belt & lowered Shute

Notifications Written: \_\_\_\_\_ W/O # \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Boiler Condition: \_\_\_\_\_  
 Superheat Section: Clean Blew 2's 3's 4's 5 R 8's 9's 10's & APH's  
 A 5/6 Rest Clean  
 B 5/6 Rest Clean  
 C light Spotty thicker on 5, 6  
8, 9 Rest clean

Unit 1 2 3 (Circle) Date: 1-12-12 CRO / PO Signature: [Signature]

# Naughton Control Room Operator Log

Control Room Oper: Hillstead  
 Shift Supervisor: Small  
 Plant Operator: Jones / Burdess  
 Scrub. Operator: \_\_\_\_\_

Date: 1-12-12

Graveyards / Days (Circle)  
U-1 U-2 U-3

Unit Load 158 MW Net CBD \_\_\_\_\_ Turns Cond. Tanks - 246 - 247 - \_\_\_\_\_

Environmental Exceedances: \_\_\_\_\_ Drum pH \_\_\_\_\_

Restrictions: \_\_\_\_\_ MW Reasons: \_\_\_\_\_

Restrictions: \_\_\_\_\_ MW Reasons: \_\_\_\_\_

Equipment Problems: #1 Air Compressor 9/5

1-2 Condensate Pump - Emergency use only - mech. seal

Aux steam 1/0 @ 8th floor

#1-1 ash sluice pump 9/5

Shift Details: Called grid ops "mike going into the switchyard"

02:00 - gas out

Tagouts Issued

Time Issue

Time Returned

Notifications Written: \_\_\_\_\_ W/O # \_\_\_\_\_

Boiler Condition:

Superheat Section: 3<sup>s</sup>, R2, 13/ew all

A good

B light 5+6

C all but 7-10 med.

D 1-4 light

Unit 1 2 3 (Circle)

Date: 1-13-12

CRO / PO Signature Eric Hillstead

Attachment G

Ash Pond Expansion Application



Naughton Power Plant

November 6, 2012

---

P.O. Box 191 \* Kemmerer, Wyoming 83101

Mark Baron  
Senior Environmental Analyst  
Wyoming Dept. of Environmental Quality  
Water Quality Division  
510 Meadowview Drive  
Lander, WY 82520

**RE: PacifiCorp – Naughton Plant – Kemmerer, WY: Permit Application for the Expansion of the North Ash Pond (Unit 3) Boundary**

Dear Mr. Baron:

In the spring of 2009, the plant determined that ash associated with the North Ash Pond had been deposited outside of the “area of inundation” boundary as defined by the isocontour lines listed on the 1993 construction application drawing. In a letter sent to you from Mr. Jeff Tucker on March 31, 2009 it explained that an estimated 55,000 cubic yards of ash was deposited outside of the inundation area. Since the time of this discovery the plant has extended the discharge line to ensure all ash is being deposited within the designated area indicated on the 1993 construction application.

Attached you will find an application to expand the boundary for the north ash pond, two drawings showing the proposed new boundary and an operation and closure plan. The boundary will be defined with signage attached to metal “T” - posts to delineate the boundary limits.

If you have any questions please contact Jason Murdock at (307) 828-4365 or Jeff Tucker at (307) 220-2989.

Sincerely,

---

A handwritten signature in black ink, appearing to read "Shawn Smith".

Shawn Smith  
Naughton Plant Managing Director

Attachment(s)

Cc: Brett Shakespear, PacifiCorp, NTO (w/attachments)  
Jeff Tucker, PacifiCorp, NTO (w/attachments)



Naughton Power Plant

November 6, 2012

---

P.O. Box 191 \* Kemmerer, Wyoming 83101

Mark Baron  
Senior Environmental Analyst  
Wyoming Dept. of Environmental Quality  
Water Quality Division  
510 Meadowview Drive  
Lander, WY 82520

**RE: PacifiCorp – Naughton Plant – Kemmerer, WY: Permit Application for the Expansion of the South Ash Pond (Units 1 & 2) Boundary**

Dear Mr. Baron:

In the spring of 2009, the plant determined that ash associated with the South Ash Pond had been deposited outside of the “area of inundation” boundary as defined by the isocontour lines listed on the 1993 construction application drawing. In a letter sent to you from Mr. Jeff Tucker on March 31, 2009 it explained that 0.9 acres of ash was deposited outside of the inundation area. Since the time of this discovery the plant has extended the discharge line to ensure all ash is being deposited within the designated area indicated on the 1993 construction application.

Attached you will find an application to expand the boundary for the south ash pond, two drawings showing the proposed new boundary and an operation and closure plan. The boundary will be defined with signage attached to metal “T” - posts to delineate the boundary limits.

If you have any questions please contact Jason Murdock at (307) 828-4365 or Jeff Tucker at (307) 220-2989.

Sincerely,

A handwritten signature in black ink, appearing to read "Shawn Smith".

Shawn Smith  
Naughton Plant Managing Director

Attachment(s)

Cc: Brett Shakespear, PacifiCorp, NTO (w/attachments)  
Jeff Tucker, PacifiCorp, NTO (w/attachments)



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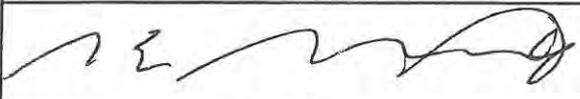
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WYOMING WATER QUALITY APPLICATION FORM			WQD USE ONLY	
Use for Construction, Groundwater Monitoring, Groundwater Remediation, Subdivisions, and Land Application of Wastewater			APP NO	
			DATE	
A complete application package must include three copies of each of the following: Application form, investigations, design reports, plans, specifications, and any other appropriate information			PROG.	
<b>Submit to appropriate office</b>		<a href="http://deq.state.wy.us/wqd/www/districts.pdf">http://deq.state.wy.us/wqd/www/districts.pdf</a>		
DEQ/Water Quality Division, 122 West 25th Street, Cheyenne, WY 82002			(307) 777.7781	
DEQ/Water Quality Division, 510 Meadowview Drive, Lander, WY 82520			(307) 332.3144	
DEQ/Water Quality Division, 2100 West 5th, Sheridan, WY 82801			(307) 673.9337	
DEQ/Water Quality Division, 152 North Durbin Street, Ste 100, Casper, WY 82601			(307) 473.3465	
<b>NAME OF PROJECT</b>				
South Ash Pond (Units 1 and 2) Boundary, Naughton Power Plant, Kemmerer, Wyoming				
<b>DESCRIPTION OF PROJECT</b>				
Boundary for South Ash Pond (Units 1 and 2) to be extended to include areas where ash has been deposited outside of the current boundary				
<b>LOCATION:</b>	<b>County:</b> Lincoln	<b>Lat:</b> 41.751	<b>Long:</b> 110.598	
Legal Description (1/4 Section, Section, Township, Range or Lot No. and Subdivision) Section 1 & 2, Township 20N, Range 117W; Section 32 & 33, Township 21N, Range 116W				
All undersigned agree to comply with applicable Wyoming Statutes and Regulations and to allow the activities described in this application.				
<b>SIGNATURES:</b>	<b>Real Estate Owner</b> The real estate owner or the grantee of the applicable easement must sign this form			
<b>PacifiCorp</b>				
 Sign Above		Address: P.O Box 191, 6 Miles South on Hwy 189		
		City: Kemmerer		State: Wyoming
		Zip Code: 83101		Phone: 307-828-4281
		Email: shawn.smith2@pacificorp.com		
		Printed Name: Shawn Smith		
If the owner or easement grantee is a public entity, partnership, or corporation, a legally binding authority must sign				
<b>Operator or Developer</b>		If same as real estate owner, this space may be left blank		
<b>Naughton Power Plant</b>				
 Sign Above		Address: P.O Box 191, 6 Miles South on Hwy 189		
		City: Kemmerer		State: Wyoming
		Zip Code: 83101		Phone: 307-828-4281
		Email: shawn.smith2@pacificorp.com		
		Printed Name: Shawn Smith		
If the operator or developer is a public entity, partnership, or corporation, a legally binding authority must sign				
<b>Engineer or Geologist</b>				
Printed Name: David J. Erickson		WY PE #		WY PG# 310
Firm Name: Water & Environmental Technologies				
Address: 480 East Park Street			<b>Please complete the second page or the back of this form</b>	
City: Butte	State: Montana	Zip Code: 59701		
Phone: 406-782-5220	Email: derickson@wet-llc.com			

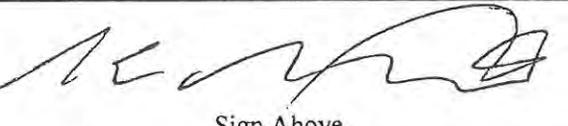
The Wyoming Environmental Quality Act, W.S. 35-11-101 and Wyoming Environmental Quality Act, Article 3, W.S. 35-11-301 mandates that permits are required for construction or modification of public water supplies, wastewater facilities, land application systems, and confined swine feeding operations. W.S. 18-5-306 requires review of the safety and adequacy of proposed sewage systems and water systems in new subdivisions by DEQ.

All Wyoming Water Quality Rules and Regulations are available at <http://deq.state.wy.us/wqd/WQDrules/index.asp>

Specific chapters of the Wyoming Water Quality Rules and Regulations have been developed for each area that requires a permit. The regulatory chapters for types of projects that this application is to be used for are listed below. Please check all that apply to your project.

<input checked="" type="checkbox"/>	11	Design and construction standards for sewerage systems, treatment works, disposal system of other facilities capable of causing or contributing to pollution, includes monitoring wells and road application of wastewater
<input type="checkbox"/>	12	Design and construction standards for public water supplies, includes subdivision water supplies and water line extensions
<input type="checkbox"/>	21	Standards for the Reuse of Treated Wastewater
<input type="checkbox"/>	23	Minimum Standards for Subdivision Applications
<input type="checkbox"/>	25	Design and construction standards for small wastewater systems includes septic tanks/leachfields
<input type="checkbox"/>	26	Well construction standards
<input type="checkbox"/>	other	Describe briefly

Previous or Associated State of Wyoming Permits	
WQD Permit to Construct	87-122R / 93-096
WQD Subdivision Recommendation to County	
Air Quality	
Land Quality	
Oil and Gas Commission	
Soild and Hazardous Waste	
State Engineers Surface Water Right or Well Permit	9907
WQD Underground Injection Control	
WYPDES (discharge permit)	WY0020311
US EPA Public Water Supply (PWS) Number	

WYOMING WATER QUALITY APPLICATION FORM		WQD USE ONLY		
Use for Construction, Groundwater Monitoring, Groundwater Remediation, Subdivisions, and Land Application of Wastewater		APP NO		
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<b>NAME OF PROJECT</b>				
North Ash Pond (Unit 3) Boundary, Naughton Power Plant, Kemmerer, Wyoming				
<b>DESCRIPTION OF PROJECT</b>				
Boundary for North Ash Pond (Unit 3) to be extended to include areas where ash has been deposited outside of the current boundary				
<b>LOCATION:</b>	<b>County:</b> Lincoln	<b>Lat:</b> 41.761	<b>Long:</b> 110.596	
Legal Description (1/4 Section, Section, Township, Range or Lot No. and Subdivision) Section 28, 29, 32 and 33, Township 21N, Range 116W				
All undersigned agree to comply with applicable Wyoming Statutes and Regulations and to allow the activities described in this application.				
<b>SIGNATURES:</b>				
<b>Real Estate Owner</b>		The real estate owner or the grantee of the applicable easement must sign this form		
<b>PacifiCorp</b>				
 Sign Above		Address: P.O Box 191, 6 Miles South on Hwy 189		
		City: Kemmerer		State: Wyoming
		Zip Code: 83101		Phone: 307-828-4281
		Email: shawn.smith2@pacificorp.com		
Printed Name: Shawn Smith		Title: Plant Managing Director		
If the owner or easement grantee is a public entity, partnership, or corporation, a legally binding authority must sign				
<b>Operator or Developer</b>		If same as real estate owner, this space may be left blank		
<b>Naughton Power Plant</b>				
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		Email: shawn.smith2@pacificorp.com		
Printed Name: Shawn Smith		Title: Plant Managing Director		
If the operator or developer is a public entity, partnership, or corporation, a legally binding authority must sign				
<b>Engineer or Geologist</b>				
Printed Name: David J. Erickson		WY PE #	WY PG# 310	
Firm Name: Water & Environmental Technologies				
Address: 480 East Park Street		<b>Please complete the second page or the back of this form</b>		
City: Butte	State: Montana			Zip Code: 59701
Phone: 406-782-5220				Email: derickson@wet-llc.com

The Wyoming Environmental Quality Act, W.S. 35-11-101 and Wyoming Environmental Quality Act, Article 3, W.S. 35-11-301 mandates that permits are required for construction or modification of public water supplies, wastewater facilities, land application systems, and confined swine feeding operations. W.S. 18-5-306 requires review of the safety and adequacy of proposed sewage systems and water systems in new subdivisions by DEQ.

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<input type="checkbox"/>	23	Minimum Standards for Subdivision Applications
<input type="checkbox"/>	25	Design and construction standards for small wastewater systems includes septic tanks/leachfields
<input type="checkbox"/>	26	Well construction standards
<input type="checkbox"/>	other	Describe briefly

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WQD Permit to Construct	82-164R / 93-096
WQD Subdivision Recommendation to County	
Air Quality	
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Oil and Gas Commission	
Soild and Hazardous Waste	
State Engineers Surface Water Right or Well Permit	9908
WQD Underground Injection Control	
WYPDES (discharge permit)	WY0020311
US EPA Public Water Supply (PWS) Number	



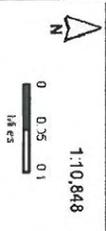
**Naughton Unit 1 & 2 Ash Pond**

**Legend**

- Hydro
- Geothermal
- Thermal
- Wind
- Biomass

— Current Boundary

— Proposed Boundary Delineated with Signs



Data is projected to NAD 1983 UTM Zone 12N. All bearings, with respect to any information, which is being furnished or otherwise disclosed, are understood and agreed that the Director may, in his discretion, use the information for any purpose whatsoever, and that the recipient of the information shall be held responsible for any and all consequences of any use of the information so furnished or otherwise provided pursuant to this Agreement.

Naughton Unit 3 Ash Pond

Legend

Generation Facilities

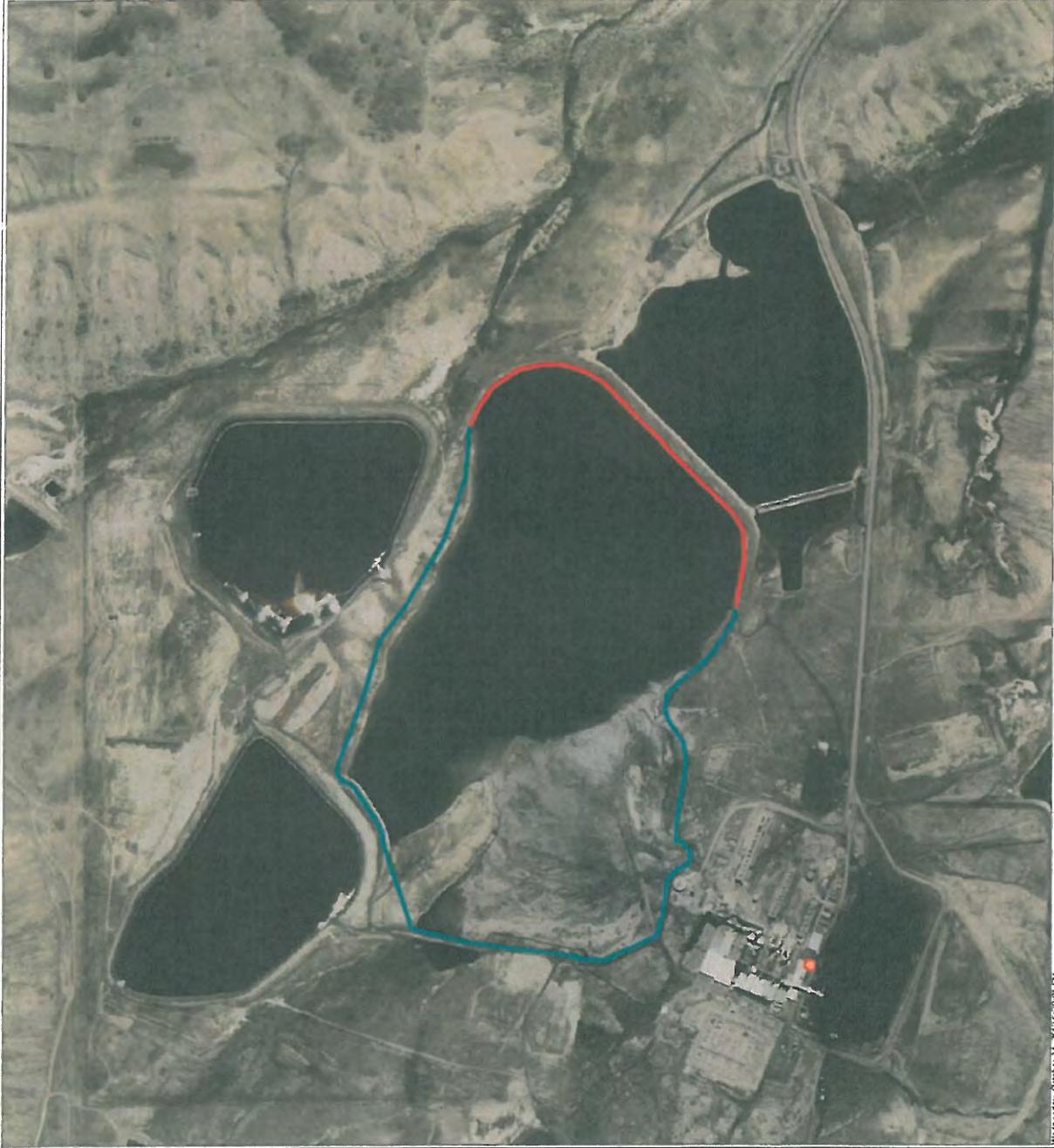
- Hydro
- Geothermal
- Thermal
- Wind
- Biomass

Current Boundary

Proposed Boundary Delineated with Signs

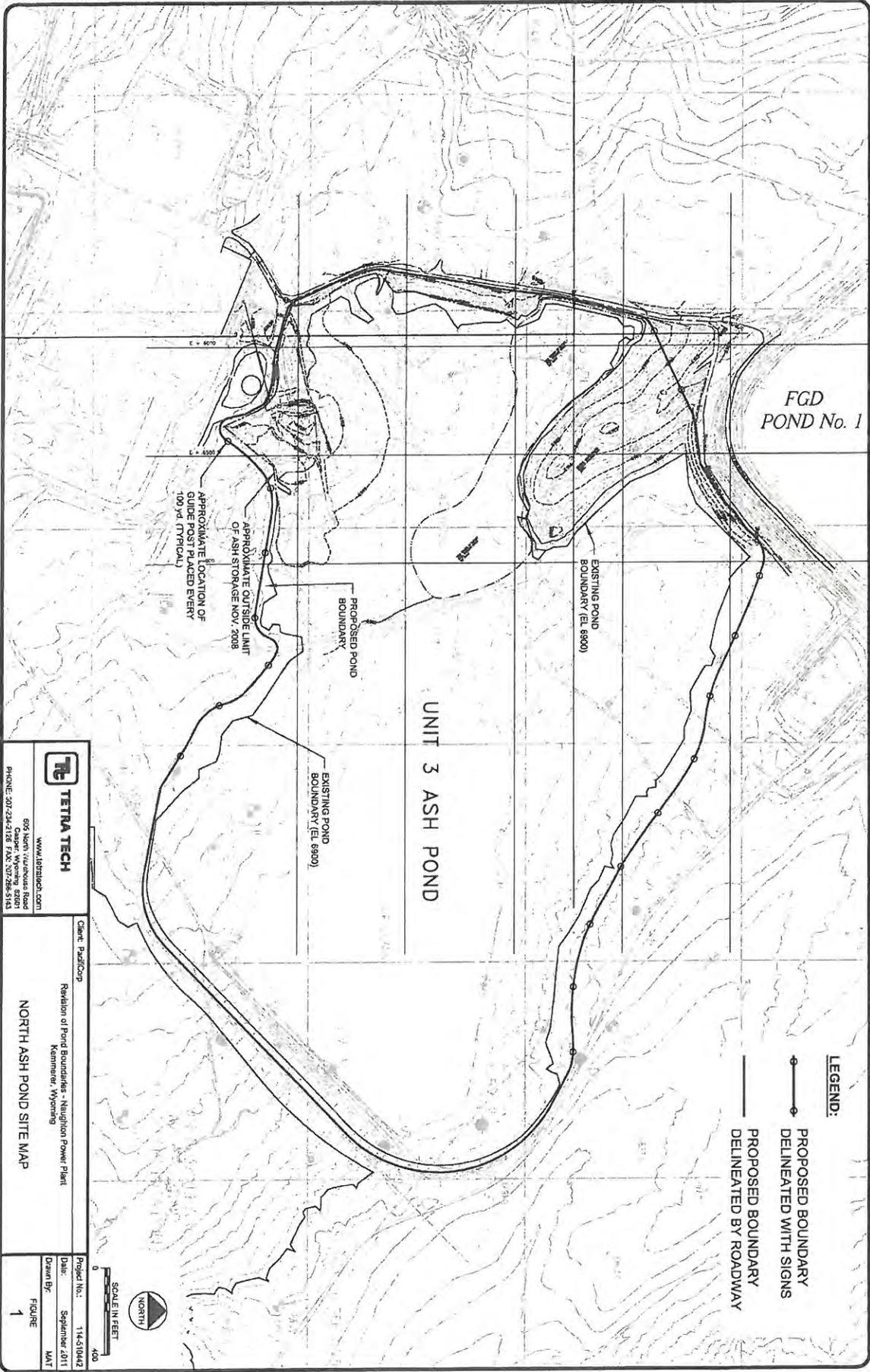


1:10,893



Ortho is projected to NAD 1983 UTM Zone 12N. No Warranty. With respect to any information, including but not limited to the Confidential Information, the Parties agree that the information is provided for the purpose of assisting the other Party in its understanding of the project and is not intended to constitute an offer of any financial product or service. The Parties agree that the information is provided for the purpose of assisting the other Party in its understanding of the project and is not intended to constitute an offer of any financial product or service. The Parties agree that the information is provided for the purpose of assisting the other Party in its understanding of the project and is not intended to constitute an offer of any financial product or service.





**TETRA TECH**  
 695 North Mulford Road  
 Kennerly, Wyoming  
 WWW.TETRA TECH.COM  
 PHONE: 307.234.2128 FAX: 307.286.5143

Client: PacificCorp  
 Revision of Pond Boundaries - Naughton Power Plant  
 Kennerly, Wyoming  
**NORTH ASH POND SITE MAP**

Project No.: 114-510442  
 Date: September 2011  
 Drawn By: MAT  
 FIGURE 1

SCALE IN FEET  
 0 400

# OPERATION PLAN NAUGHTON POWER PLANT NORTH AND SOUTH ASH PONDS

PREPARED FOR:

PacifiCorp Energy  
Naughton Power Plant  
P.O. Box 191  
Kemmerer, WY 83101



SUBMITTED BY:

Water & Environmental Technologies  
480 East Park Street, Suite #200  
Butte, MT 59701  
406.782.5220

August 20, 2012

# Naughton Power Plant

## *North and South Ash Ponds Operation Plan*

Prepared for:

PacifiCorp Energy  
Naughton Power Plant  
PO Box 191  
Kemmerer, WY 83101

Prepared by:

**Water & Environmental Technologies, PC**  
480 East Park, Suite 200  
Butte, MT 59701

Phone: (406) 782-5220  
[www.wet-llc.com](http://www.wet-llc.com)

**August 20, 2012**

Project Reference: PERC M33

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<b>6.0</b>	<b>CONCLUSION.....</b>	<b>7</b>

## 1.0 INTRODUCTION

The Coal Combustion Residue (CCR) Ponds at the Naughton Power Plant consist of the North Pond, which receives CCR from Unit 3; and the South Ash Pond, which receives CCR from Units 1 & 2. CCR is slurried to both ponds via open channels on the surface of the previously deposited material. The coarser fractions, mostly bottom ash, settle out first with the finer materials being transported further into the ponds. The coarse bottom ash has been periodically removed from the channels and deposited as a continuous dike alongside the slurry transport channels. The method of CCR deposition into the ponds has resulted in an alluvial fan of CCR with large areas of fine-grained material on or near the surface. The fine particles of CCR have the potential to become airborne during high wind events thus creating fugitive dust issues.

As part of this Operation Plan, an Interim and Final Closure Plan for the north and south CCR ponds is provided to:

- Reduce and/or eliminate fugitive dust from the dried CCR surface.
- Provide orderly filling of designed cells.
- Maximize CCR disposal volumes.
- Provide a timely solution to multiple closure issues.
- Provide un-interrupted Plant operation.
- Provide an orderly and effective closure of both CCR ponds.

It is important to note that the plans and drawings presented in this document are preliminary. Due to dynamic field conditions and anticipated regulatory changes, the actual construction may vary slightly from these plans. As-built drawings will be provided following completion of the project.

## 2.0 FUTURE CCR DEPOSITION

General CCR deposition plans were created for both the North and South Ash Ponds to ensure adequate volumes are present to accommodate CCR past the anticipated end of plant life in 2029. The future deposition plans will also minimize surface area while maximizing storage volumes, thus minimizing final closure activities and future dust issues. Design specifics for both the North and South Ponds are included in the following sections.

### 2.1 South CCR Pond

The future deposition of CCR into the South Ash Pond was designed assuming Units 1 & 2 will continue to deposit CCR at the current rates through 2029. However, the design also includes cells to accommodate CCR much past the 2029 date, should additional storage be required. Design details are located on Figure SP-1 in Appendix A.

The main slurry conveyance ditch will be constructed of polypropylene half-pipe and include a series of bottom ash collection areas. Temporary channels constructed of CCR will be constructed to direct deposition into specific areas of the cells. The collected bottom ash will be periodically spread to continually address fugitive dust issues. Design details are located on Figures D-2 and D-3 in Appendix A.

**Cell 1**

Cell 1 includes all of the current CCR deposited in the South Ash Pond. Cell 1 has a current area of approximately 22 acres. No additional CCR is planned for Cell 1. Details are provided in Figure SP-1 in Appendix A.

**Cell 2**

Cell 2 has a projected volume of 370,000 yd<sup>3</sup> and will provide approximately 4 years (2012-2015) of deposition. CCR will be transported to Cell 2 by re-directing the existing transport ditch across Cell 1 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures SP-1, D-2, and D-3 in Appendix A.

**Cell 3**

Cell 3 has a volume of 1,000,000 yd<sup>3</sup> and will provide approximately 12 years (2016-2027) of deposition. CCR will be transported to Cell 3 by re-directing the existing transport ditch across Cell 1 and Cell 2 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures SP-1, D-2, and D-3 in Appendix A.

**Cell 4**

Cell 4 has a volume of 70,000 yd<sup>3</sup> and will provide approximately 1 year (2028) of deposition. CCR will be transported to Cell 4 by re-directing the existing transport ditch across Cells 1, 2, and 3 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures SP-1, D-2, and D-3 in Appendix A.

**Cell 5**

Cell 5 has a volume of 750,000 yd<sup>3</sup> and will provide approximately 8 years (2029-2036) of deposition. CCR will be transported to Cell 5 by re-directing the existing transport ditch across Cells 1, 2, 3, and 4 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures SP-1, D-2, and D-3 in Appendix A.

**Cell 6**

Cell 6 has a volume of 400,000 yd<sup>3</sup> and will provide approximately 4 years (2037-2040) of deposition. CCR will be transported to Cell 5 by re-directing the existing transport ditch across Cells 1, 2, 3, 4, and 5 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures SP-1, D-2, and D-3 in Appendix A.

**2.2 North CCR Pond**

The future deposition of CCR into the North Ash Pond was designed assuming Unit 3 will continue to deposit CCR at the current rates through 2029. However, the design also includes cells to accommodate CCR much past the 2029 date, should additional storage be required. Design details are located on Figure NP-1 in Appendix A.

The main slurry conveyance ditch will be constructed of polypropylene half-pipe and include a series of bottom ash collection areas. Temporary channels constructed of CCR will be constructed to direct deposition into specific areas of the cells. The collected bottom ash will be periodically spread to continually address fugitive dust issues. Design details are located on Figures D-2 and D-3 in Appendix A.

**Cell 1**

Cell 1 includes all of the current CCR deposited in the North Ash Pond. Cell 1 has a current area of approximately 53 acres and a volume of approximately 600,000 yd<sup>3</sup>. No additional CCR is planned for Cell 1. Final closure design details are located on Figures NP-2 through NP-4 in Appendix A.

**Cell 2**

Cell 2 has a projected volume of 400,000 yd<sup>3</sup> and will provide approximately 5 years (2012-2016) of deposition. CCR will be transported to Cell 2 by re-directing the existing transport ditch across Cell 1 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures NP-1, D-2, and D-3 in Appendix A.

**Cell 3**

Cell 3 has a projected volume of 480,000 yd<sup>3</sup> and will provide approximately 6 years (2017-2022) of deposition. CCR will be transported to Cell 3 by re-directing the existing transport ditch across Cell 1 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures NP-1, D-2, and D-3 in Appendix A.

**Cell 4**

Cell 4 has a volume of 860,000 yd<sup>3</sup> and could provide approximately 11 years (2023-2033) of deposition. CCR will be transported to Cell 4 by re-directing the existing transport ditch across Cell 1 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures NP-1, D-2, and D-3 in Appendix A.

**Cell 5**

Cell 5 has a volume of 380,000 yd<sup>3</sup> and could provide approximately 5 years (2034-2038) of deposition. CCR will be transported to Cell 5 by re-directing the existing transport ditch across Cell 1 in a polypropylene half-pipe to a bottom ash collection area near the pond water edge. Details are provided on Figures NP-1, D-2, and D-3 in Appendix A.

### **3.0 FUGITIVE DUST CONTROL/INTERIM COVER**

Fugitive dust resulting from the natural drying of the CCR slurry may become an issue for the Naughton Plant. As the CCR is deposited into the pond, the coarser, heavier bottom ash material settles first, resulting in finer, light ash particles being deposited further out into the pond. Currently, the bottom ash material is being periodically excavated from the slurry channel and placed alongside in piles of various lengths and heights. With the heavy, coarse materials concentrated in a relatively small area, the finer, lighter materials are more prone to wind transport. To control fugitive dust, approximately 6 inches of bottom ash will be placed over the existing CCR surface. Approximately 1 to 3 inches of native soil will be placed over the bottom ash as an interim vegetative layer.

Prior to bottom ash spreading, a pilot study will be conducted to determine equipment capabilities and actual preliminary cover boundaries. The pilot study will include the following:

1. Determine the areas that can be traversed by equipment:
  - a. ATV/UTV to spread monomer for dust control;
  - b. Caterpillar D6T LCP Dozer or equivalent with a ground contact pressure of approximately 5 psi; and

- c. Caterpillar 627G scraper with floatation tires.
2. Determine the minimum thickness of bottom ash needed to support scrapers and dump trucks near the water edge.
3. Determine the minimum thickness of bottom ash needed to support low pressure dozers near the water edge.
4. Determine if lowering water level increases equipment coverage.

By slightly modifying existing operational procedures regarding the heavier bottom ash, fugitive dust issues will be controlled. As the CCR expands into the future cells, it becomes increasingly important to separate and stockpile as much bottom ash as possible. Construction of a basin to more rapidly settle out the bottom ash will accommodate the future needs of the project. The native soil will come from locations on Naughton Plant property. The following sections address specific fugitive dust control plans for each CCR pond.

### 3.1 South Ash Pond

The South Ash Pond currently holds approximately 1,100,000 yd<sup>3</sup> of various CCR. The current surface area of exposed CCR is approximately 22 acres (958,000 ft<sup>2</sup>), which includes approximately 19,400 yd<sup>3</sup> of bottom ash which has been removed from the slurry channel. Based on the available volumes, a 6-inch to 8-inch layer of the bottom ash can be placed over the existing CCR surface, creating a surface much less likely to produce fugitive dust. Prior to final design, a grain size analysis will be done on samples of the bottom ash piles to determine if a screening step will be necessary prior to placing the bottom ash. Details are provided in figures SP-1 thru SP-3 in Appendix A.

Slight operational changes incorporated during this preliminary cover phase will allow for more efficient separation of the heavier bottom ash, which will be deposited over the finer material as the surface expands. The following outlines the process for placing the interim bottom ash cover:

1. Construct polypropylene half-pipe conveyance ditch (see Figure SP-1).
2. Construct bottom ash collection areas at the ends of the half-pipe, closer to the edge of the pond to mitigate continuous fugitive dust issues.
3. Re-route the current surface water flow in the northeast corner of Cell 1 into the adjacent pond using half-pipe (see Figure D-4).
4. Lower water level to the optimum level determined in the Pilot Study.
5. Apply dust control monomer as soon after lowering the pond level as possible.
6. Begin transporting bottom ash to construct access route to water's edge.
7. Begin spreading bottom ash to approximately 6 inches.
8. Cover bottom ash with approximately 1-3 inches of native soil, if necessary.
9. Raise water level back to current level.

### 3.2 North Ash Pond

The North Ash Pond currently holds approximately 1,000,000 yd<sup>3</sup> of various CCR. The current surface area of exposed CCR is approximately 52 acres (2,255,000 ft<sup>2</sup>), which includes approximately 48,000 yd<sup>3</sup> of bottom ash which has been removed from the slurry channel. Based on the available volumes, a 6-inch to 8-inch layer of the bottom ash can be placed over the existing CCR surface, creating a surface much less likely to produce fugitive dust. Prior to

final design, a grain size analysis will be done on samples of the bottom ash piles to determine if a screening step will be necessary prior to placing the bottom ash. Design details are provided on Figure NP-2 in Appendix A.

Slight operational changes incorporated during this preliminary cover phase will allow for more efficient separation of the heavier bottom ash, which will be deposited over the finer material as the surface expands. The following outlines the basic process for placing the interim bottom ash cover:

1. Construct polypropylene half-pipe conveyance ditch (see Figure NP-1).
2. Construct bottom ash collection areas at the ends of the half-pipe, closer to the edge of the pond to facilitate continuous fugitive dust issues.
3. Divert water from existing settling pond to a by-pass ditch on the northwest side of Cell 1 (See Figures NP-2 & D-1).
4. Construct a haul road adjacent to the above mentioned by-pass ditch (See Figure NP-2).
5. Lower existing pond water level by approximately 3 feet (if deemed necessary based on the pilot study results).
6. Begin transporting and spreading bottom ash.
7. Cover bottom ash with approximately 1-3 inches of native soil, if necessary for dust control/re-vegetation.

#### **4.0 CCR POND FINAL COVER**

As per Wyoming Department of Environmental Quality (WDEQ) regulations, the final cover for the Naughton Ash Ponds will have a minimum permeability less than or equal to the permeability of the underlying natural sub-soils. Final cover design documents will be provided immediately prior to final cover construction activities. Construction of the final cover will begin within 5 years of reaching the design footprint for each cell defined in Section 2 of this document. The time lag is necessary to allow for the dewatering of the upper surfaces of the CCR. The cover will minimize infiltration into the CCR material and provide adequate moisture storage for long-term vegetation success. Preliminary design specifications are provided in Figures NP-3, NP-4, and SP-4 in Appendix A. Comprehensive soil testing of potential on-site cover material will be conducted prior to Final Cover design.

#### **5.0 EROSION AND STORM WATER RUNOFF**

The key to long-term success of any landfill cover is controlling erosion. Storm water is the major component of erosion and must be addressed for the cover to be successful. Features such as contour channels and conveyance channels along with rapid establishment of vegetation are essential to controlling erosion resulting from storm water.

##### **5.1 Design Storm Events**

The design storms used for this plan are the 10-year, 24-hour and the 100-year, 24-hour events. Based on data provided by the NOAA Atlas 2: Precipitation Frequency of the Western United States (1973), the following storm events and amounts will be used to calculate the rainfall intensities that will be used in the runoff calculations:

- 10-year, 24-hour storm = 1.8 inches.

- 100-year, 24-hour storm = 2.4 inches.

Precipitation events in Wyoming follow the SCS Type II Storm Distribution Curve. According to this curve, for a 24-hour storm event, the maximum intensity (in/hr) will occur over a 1.5 hour period from hour 11 to hour 12.5 of the storm event. Based on the SCS Type II precipitation distribution and the time of concentrations for the small sub-areas associated with the landfill cover, the following maximum intensities will be used to calculate runoff flow rates and/or volumes:

- $i_{100-yr} = 0.8$  in/hr.
- $i_{10-yr} = 0.6$  in/hr.

## 5.2 Storm Water Peak Flow Equations

Based on the small drainage areas of the potential sub- areas associated with the landfill cover, the rational method was used to determine the peak discharge of the design storm events. The following equation represents the Rational Formula:

$$Q_p = CiA \quad (5)$$

Where:

- $Q_p$  = peak discharge in cubic feet per second (cfs)
- C = runoff coefficient (dimensionless)
- $i$  = rainfall intensity (in/hr)
- A = watershed area (acres)

Use of the Rational Method is limited to drainage areas less than 200 acres. The following are the basic assumptions for using the Rational Equation:

- The rainfall intensity must be constant for a time interval at least equal to the time of concentration for the drainage basin. The intensities stated in Section 2.1 will be used in all calculations.
- The runoff is a maximum when the rainfall intensity lasts as long as the time of concentration.
- The runoff coefficient (C) is constant during the storm volume. The runoff coefficient used for the rational equation is based on factors including type of soil, slope, and vegetation.
- The watershed area (A) does not change during the storm.

## 5.3 Erosion Control Features and Construction Practices

### 5.3.1 Conveyance Channels

Conveyance channels will be constructed to convey the storm water to the sediment catch basins in as little time as possible. Conveyance channels will convey the 100-year storm event in the main channel. Conveyance ditches will be rip-rap lined at all locations where the slope exceeds 10%. Maximum allowable velocities for rip rap-lined

channels on steep slopes range between 9 ft/s and 11 ft/s. Maximum allowable velocities for grass-lined channels on flat to moderate slopes range from 4 ft/s to 6 ft/s.

### 5.3.2 Revegetation

An important component of erosion control is establishing vegetation as quickly as possible. The seed mix will include native species as well as strong-establishing, introduced species, primarily crested wheatgrass, and sheep fescue. Broadcast seeding followed by a chain harrow to loosen the topsoil and lightly cover the seeds is recommended. Seeding will be done in the fall or spring, to take advantage of cooler temperatures and increased precipitation.

## 6.0 CONCLUSION

This Preliminary Operations Plan for the CCR ponds at Naughton Power Plant details the layout, CCR deposition, construction, and waste material re-use for the projected life of the Plant. The phased approach outlined in this plan provide logical and cost effective methods for disposing of the CCR generated during daily operations.

A major component of the Operations Plan is the interim cover for both the North and South CCR Ponds. The interim covers are important and necessary features that are designed to minimize fugitive dust, create access for construction and maintenance, and provide an adequate base for the final ET cover construction. By implementing the Operations Plan, the following goals can be achieved:

1. Reduce and/or eliminate fugitive dust from the dried CCR surface.
2. Provide orderly filling of designed cells.
3. Maximize CCR disposal volumes.
4. Provide a timely solution to multiple closure issues.
5. Provide uninterrupted Plant operation.
6. Provide an orderly and effective closure of both CCR ponds.
7. Minimize infiltration of precipitation.
8. Minimize long-term maintenance.
9. Establish a cover that looks and functions like surrounding landscapes including slopes, rocks, and vegetation.

This Operations Plan is designed to serve as a guidance document for the future activities planned for the Naughton Power Plant. The plans, designs, and calculations presented in this plan are based on the best available data, and should be amended when/if better data becomes available as required by regulatory changes. The Figures presented are for planning purposes and not intended to be used as construction documents.

## **APPENDIX A**

### **Figures**

**Figure SP-1 – South Pond Site Plan**

**Figure SP-2 – South Pond, Dust Control Plan**

**Figure SP-3 – South Pond, Typical Section**

**Figure SP-4 – South Pond, Section 2+00**

**Figure NP-1 – North Pond Site Plan**

**Figure NP-2 – North Pond, Interim Closure Plan**

**Figure NP-3 – North Pond, Final Closure Plan**

**Figure NP-4 – North Pond, Final Closure Plan**

**Figure D-1 – Collection Ditch Detail**

**Figure D-2 – Operations Plan**

**Figure D-3 – Ditch Detail**

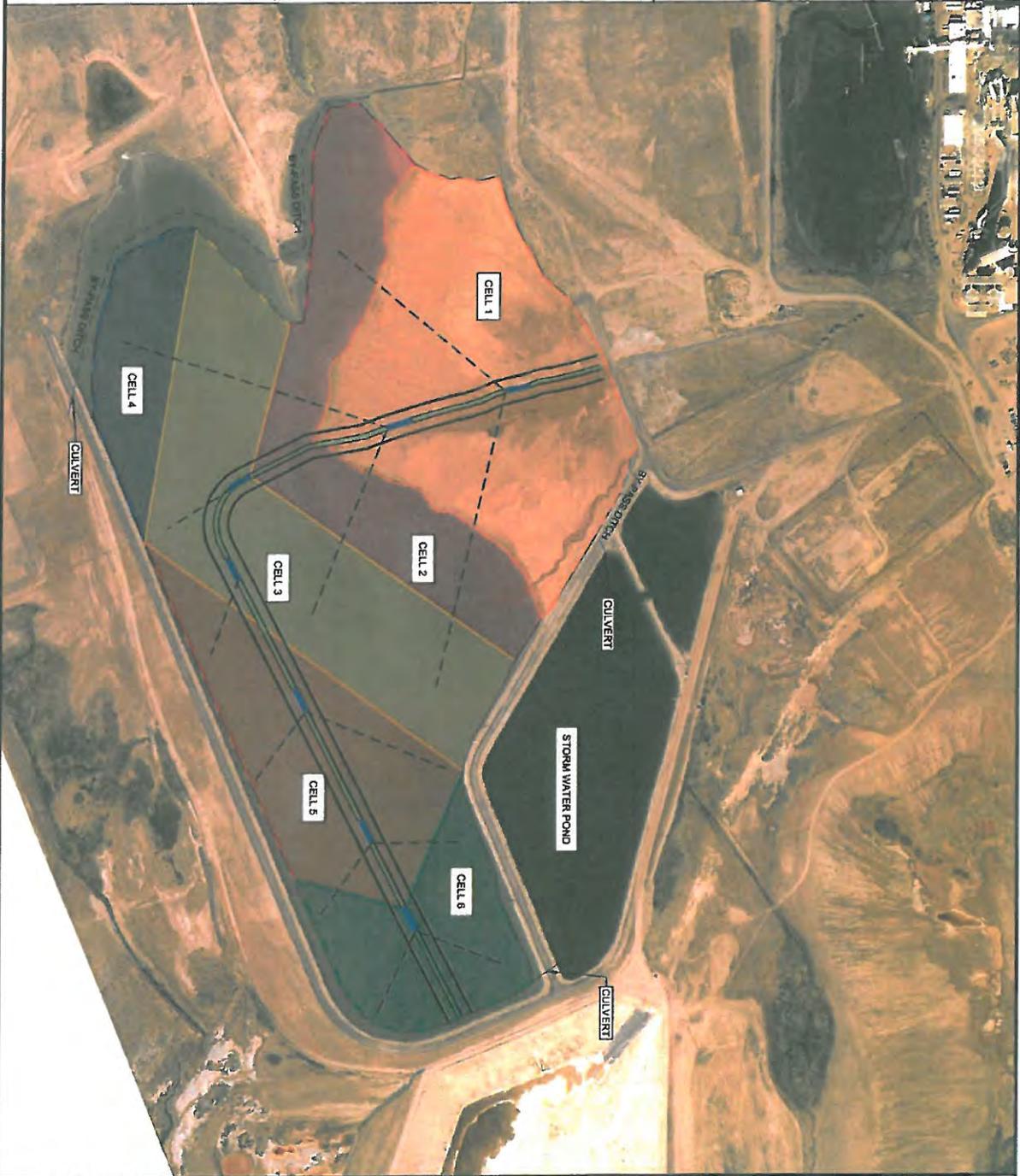
**Figure D-4 – By-Pass Detail**

**LEGEND**

- Temporary Slurry Ditches
- ==== Slurry Conveyance Ditch
- Bottom Ash Collection Areas
- Runoff Collection Ditches
- By-Pass Ditches

**GENERAL NOTES**

1. Cell life calculations assume a fill rate of 80,200 cubic yards per year.
2. Cell 1 is 19 acres with a capacity of 0.37 million BCY ±. Expected life is approximately 4 years.
3. Cell 2 is 23 acres with a capacity of 1.10 million BCY ±. Expected life is approximately 12 years.
4. Cell 3 is 7 acres with a capacity of 0.07 million BCY ±. Expected life is approximately 0.8 years.
5. Cell 4 is 17 acres with a capacity of 0.75 million BCY ±. Expected life is approximately 8 years.
6. Cell 5 is 11 acres with a capacity of 0.40 million BCY ±. Expected life is approximately 4 years.
7. Cell 6 is 28 acres with a capacity of 0.28 million BCY ±. Expected life is approximately 1 year.
8. The slurry conveyance ditch is a 42" half section of HDPE pipe set at an average grade of 0.87%. Cleaning velocities in the HDPE channel are expected to be 6 ft/sec. See Detail D-2 for channel details.
9. Temporary ditches route ash slurry from bottom ash collection ditches to the pond when needed. See Detail D-3 for details.
10. By-pass ditches route off-site storm water around the closed landfill cells and are not installed until cells are closed.
11. Collection ditches route runoff from closed landfill cells to the stormwater pond. See Detail D-1.



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SCALE 1" = 400'

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PRELIMINARY CCR PONDS CLOSURE PLAN  
 SOUTH POND OPERATIONS PLAN  
**SOUTH POND SITE PLAN**  
 KEMMERER, WY

SHEET 1 of 12  
**SP-1**

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No.	REVISION/ISSUE	Date

**PRELIMINARY NOT FOR CONSTRUCTION**

LEGEND

- Cross Section Line
- - - - - By-Pass Ditch

GENERAL NOTES

1. Cell boundaries closest to the pond will vary and are dependent upon equipment access.
2. Monomer will be applied as a temporary fugitive dust control measure where bottom ash cannot be spread.
3. Bottom ash will be transported by Caterpillar 677D tandem powered scrapers equipped with high isolation tires or equivalent by engineer to be as shown. Actual boundary conditions may vary due to equipment access. Volumes ranges are based off of the assumption that 6-12" of bottom ash is spread across the entire cell area.
4. Cell boundary conditions to be as shown.



May 2012 W.E.  
6995.00

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 DATE: 6/20/2012  
 DESIGNER: BAS  
 CHKD BY: SA

SCALE 1" = 150'

NAUGHTON POWER PLANT  
 CELL 1 DUST CONTROL PLAN  
**DUST CONTROL PLAN**  
 KEMMERER, WY

SHEET  
 2 of 12

**SP-2**

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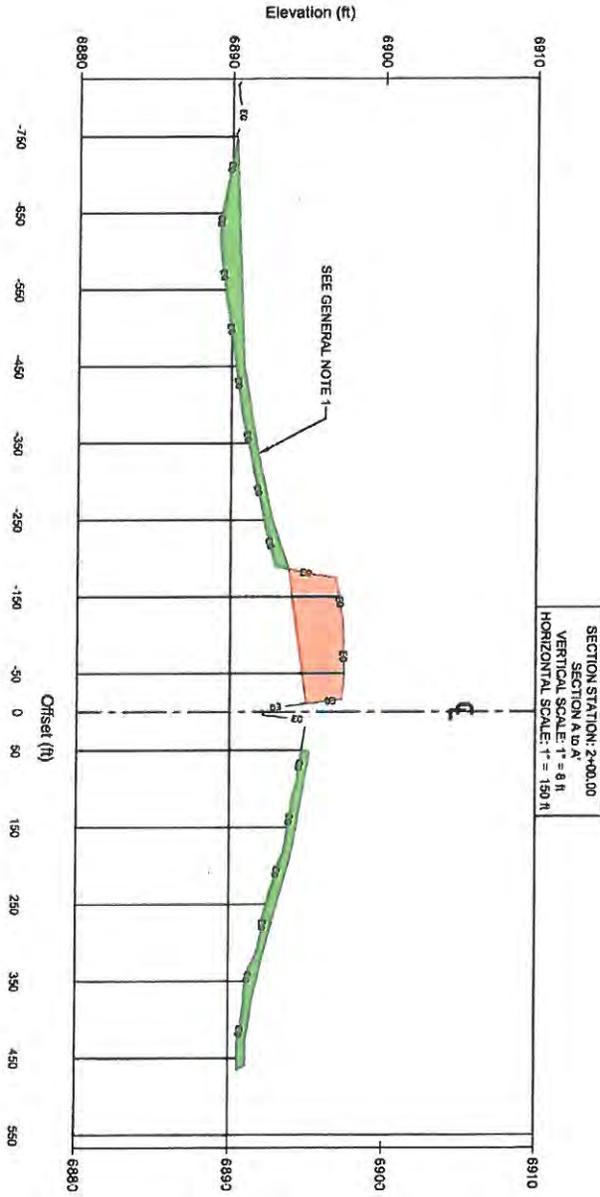
**PRELIMINARY NOT FOR CONSTRUCTION**

LEGEND

-  - FILL AREA
-  - CUT AREA
-  - Existing Grade

GENERAL NOTES

1. Bottom ash cover varies between 6 and 12 inches thick.
2. A 1 to 2' non thick rock soil layer will be added, if needed, to establish vegetation to minimize dust.



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 CHK'D BY: SA

SCALE 1" = 150'

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NAUGHTON POWER PLANT  
 South Pond Dust Control Plan

**TYPICAL SECTION**

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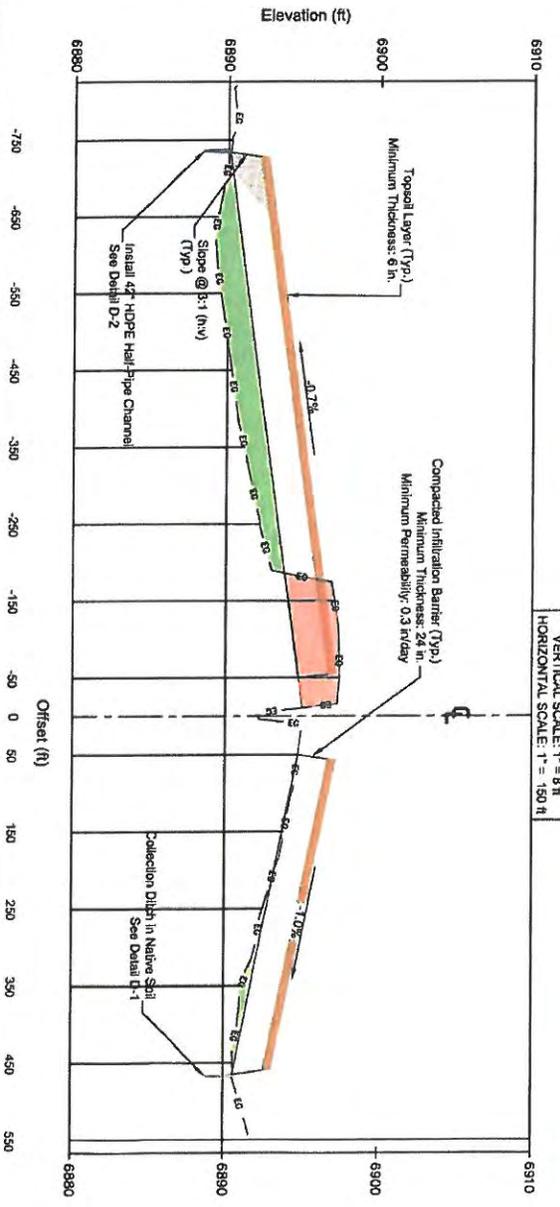
**PRELIMINARY NOT FOR CONSTRUCTION**

SHEET 3 of 12  
**SP-3**

GENERAL NOTES

-  Surface Water By-Pass Ditch
-  Section Line
-  Slurry Conveyance Channel
-  Existing Grade
-  - FILL AREA
-  - CUT AREA
-  - 6" Top Soil
-  - 24" CAP

LEGEND



SECTION A to A'  
VERTICAL SCALE: 1" = 8 ft  
HORIZONTAL SCALE: 1" = 150 ft

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DATE: 8/20/2012  
DESIGNER: BAS  
CHKD BY: SA

SCALE 1" = 150'

NAUGHTON POWER PLANT  
South Pond Final Closure Section

**SECTION 2+00**

KEMMERER, WY

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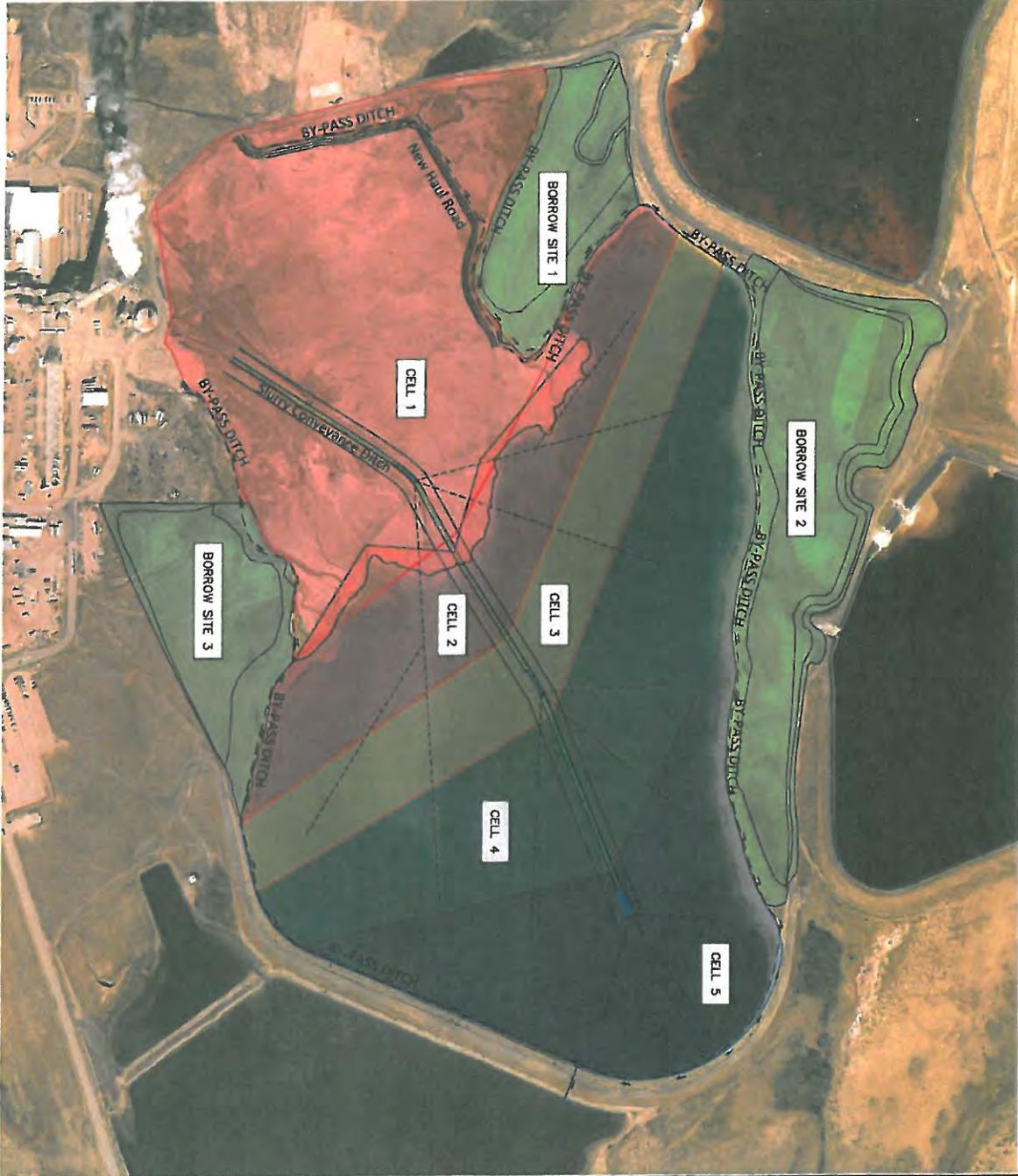
SHEET 4 of 12  
**SP-4**

**LEGEND**

-  Slurry Conveyance Channel (See detail Sheet D-2)
-  Temporary Ditch (See detail Sheet D-1)
-  Surface Water By-Pass Ditch
-  Bottom Ash Collection Area

**GENERAL NOTES**

1. Cell life calculations assume a fill rate of 77,000 cubic yards per year.
2. Cell 1 is 92.7 acres with approx. 0.38 million BCY.
3. Cell 2 is 21.6 Acres with a capacity of 0.40 million CY ±. Expected life is approximately 5 years.
4. Cell 3 is 20.0 acres with a capacity of 0.48 million CY ±. Expected life is approximately 8 years.
5. Cell 4 is 24.5 acres with a capacity of 0.66 million CY ±. Expected life is approximately 11 years.
6. Cell 5 is 28.4 acres with a capacity of 0.38 million CY ±. Expected life is approximately 5 years.
7. Total life expectancy for Cells 2-5 is 27 years total.
8. Borrow Site 1 is 10.4 acres
9. Borrow Site 2 is 24.0 acres
10. Borrow Site 3 is 11.5 acres



JOB # PERCM33  
 DATE: 8/1/2012  
 DESIGNER: KP  
 CHKD BY: SA

SCALE 1" = 400'

0 200 400

**NP-1**

NAUGHTON POWER PLANT  
 PRELIMINARY CCR PONDS CLOSURE PLAN  
**NORTH POND SITE PLAN**  
 KEMMERER, WYOMING

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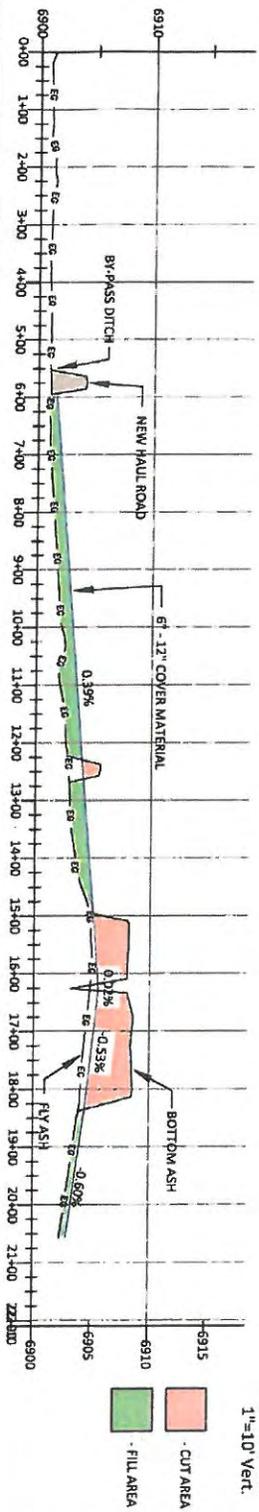
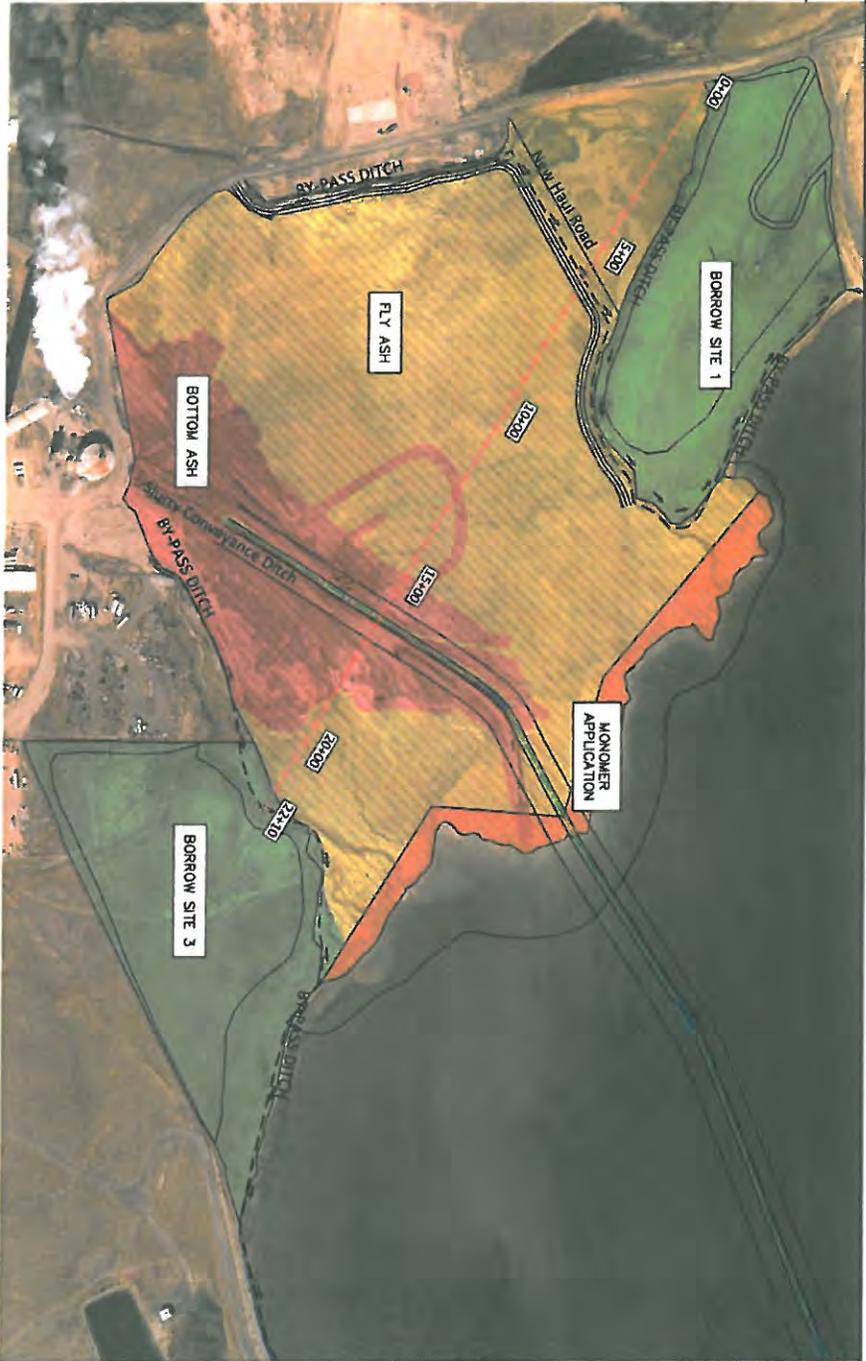
**PRELIMINARY NOT FOR CONSTRUCTION**

**LEGEND**

- Slurry Conveyance Channel (See detail Sheet D-2)
- Temporary Ditch (See detail Sheet D-1)
- Surface Water By-Pass Ditch
- Bottom Ash Collection Area
- INTERIM COVER AREA
- FLY ASH
- BOTTOM ASH
- BORROW AREA
- MONOMER AREA

**GENERAL NOTES**

1. Fly Ash - 51.8 acres Approx. 0.58 million BCY
2. Bottom Ash - 12.3 acres Approx. 0.248 BCY
3. Interim Cover Area - 18 acres
4. Approximate Monomer Application area - 3.2 acres



JOB # PERCM33  
 DATE: 8/1/2012  
 DESIGNER: KP  
 CHK'D BY: SA

SCALE 1" = 300'

Profile Scale  
 1" = 200' Hor.  
 1" = 10' Vert.

NAUGHTON POWER PLANT  
 PRELIMINARY CCR PONDS CLOSURE PLAN  
 NORTH POND  
 INTERIM CLOSURE PLAN  
 KEMMERER, WYOMING

SHEET 6 of 12

**NP-2**

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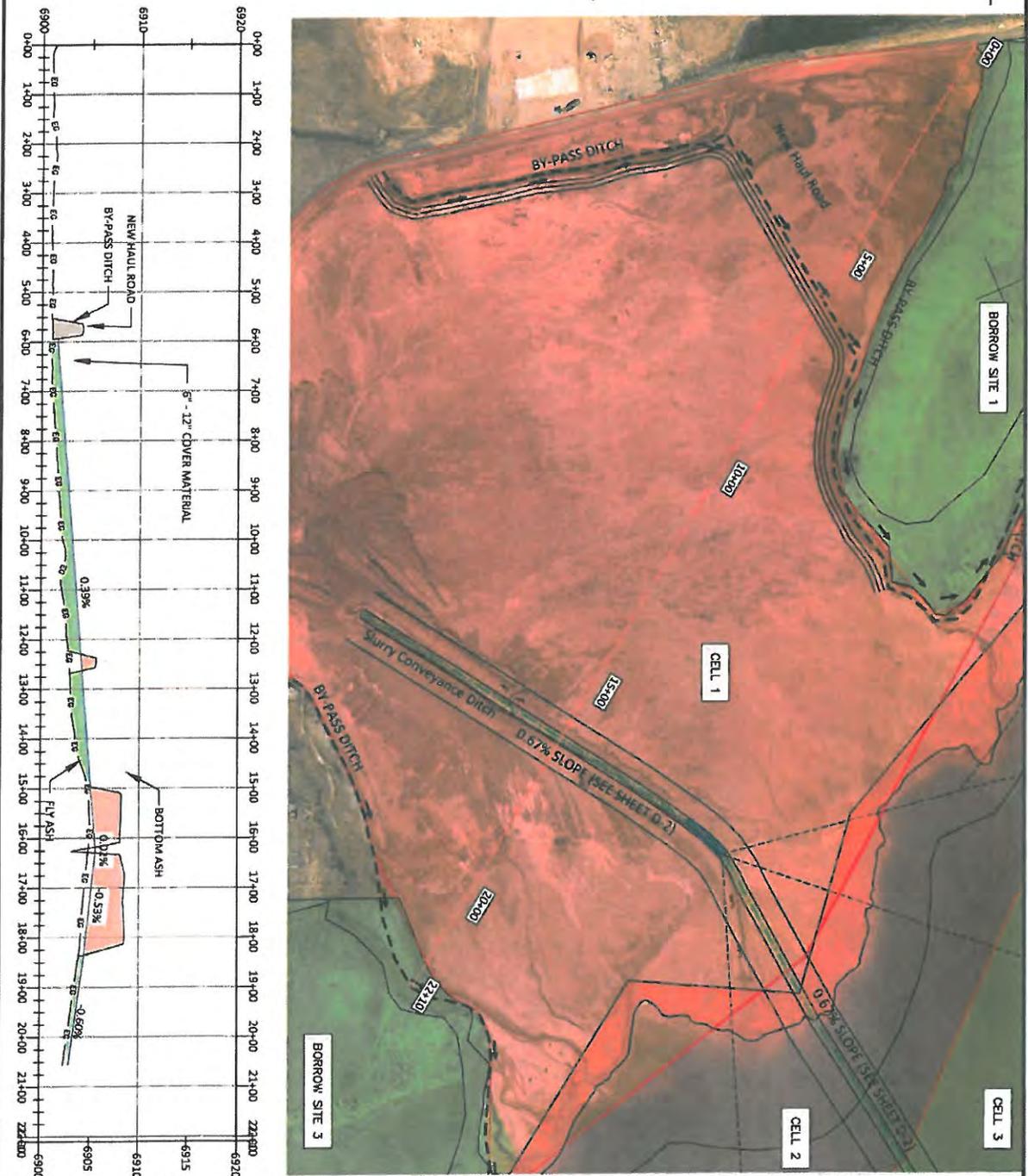
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**PRELIMINARY NOT FOR CONSTRUCTION**

**LEGEND**

- Slurry Conveyance Channel (See detail Sheet D-2)
- Temporary Ditch (See detail Sheet D-1)
- Surface Water By-Pass Ditch
- Bottom Ash Collection Area
- CUT AREA
- FILL AREA

**GENERAL NOTES**



**JOB # PERCM33**  
**DATE: 8/1/2012**  
**DESIGNER: KP**  
**CHKD BY: SA**

**SCALE 1" = 200'**

**NAUGHTON POWER PLANT  
 PRELIMINARY CCR PONDS CLOSURE PLAN  
 NORTH POND  
 FINAL CLOSURE PLAN  
 KEMMERER, WYOMING**

**NP-3**  
 SHEET 7 of 12

**WATER & ENVIRONMENTAL TECHNOLOGIES, PC**

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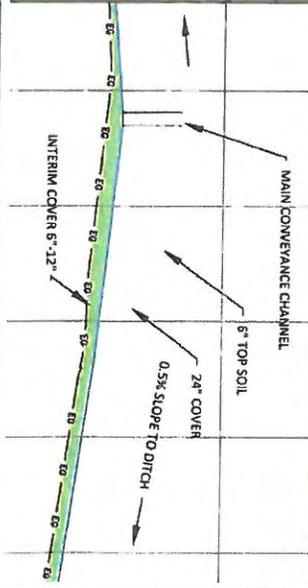
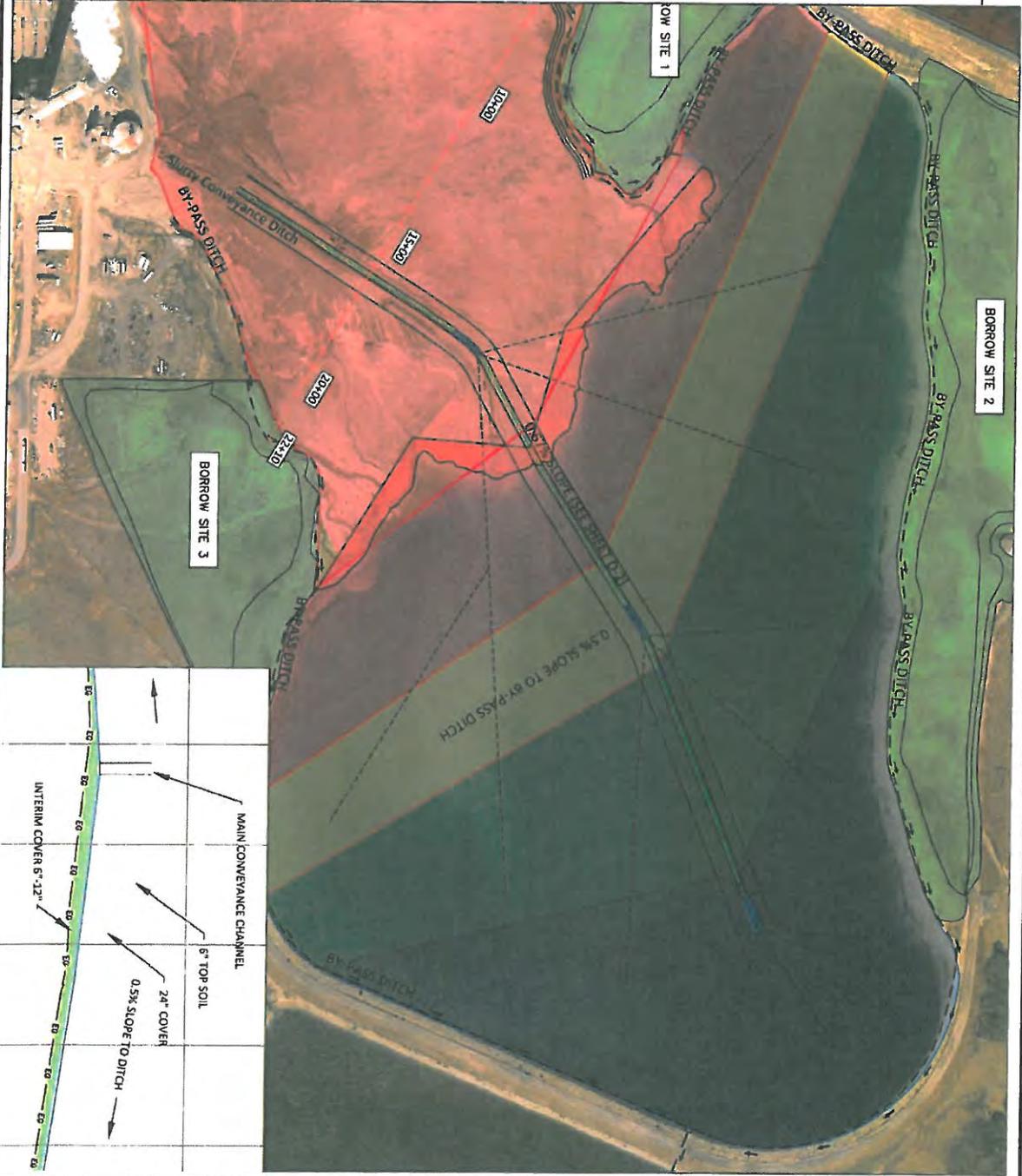
No.	Revision/Issue	Date

**PRELIMINARY NOT FOR CONSTRUCTION**

GENERAL NOTES

-  FILL AREA
-  CUT AREA
-  Bottom Ash Collection Area
-  Surface Wear By-Pass Ditch
-  Temporary Ditch (See detail Sheet O-1)
-  Slurry Conveyance Channel (See detail Sheet D-2)

LEGEND



JOB # PERCM33  
 DATE: 8/1/2012  
 DESIGNER: KP  
 CHKD BY: SA

SCALE 1" = 300'

NAUGHTON POWER PLANT  
 PRELIMINARY CCR PONDS CLOSURE PLAN  
 NORTH POND  
 FINAL CLOSURE PLAN  
 KEMMERER, WYOMING

NP-4  
 SHEET  
 8 of 12

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No.	Revision/Issue	Date

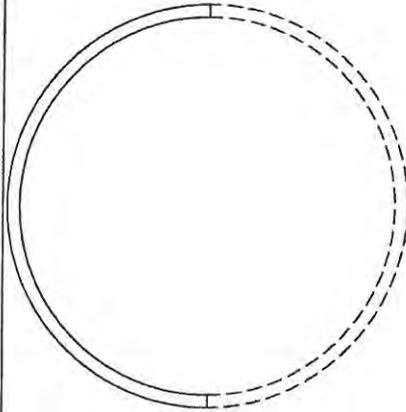


LEGEND

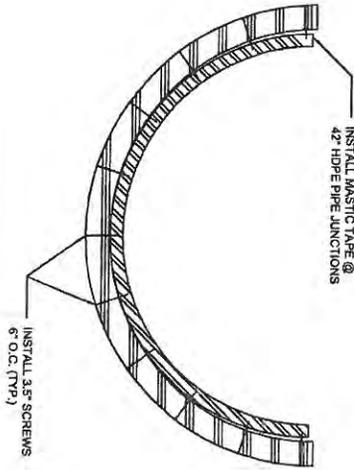
GENERAL NOTES

1. HDPE pipe shall be cut in half length-wise to make half channels.
2. 48" HDPE to be used as a connection fitting. Fitting length is 5 ft per connection.

TYPICAL 42" HDPE PIPE - SDR 32.5  
SECTION A-A'  
SCALE: 1" = 1'



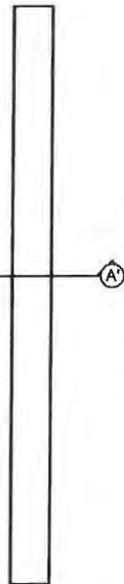
TYPICAL CHANNEL CONNECTION  
SECTION B-B'  
SCALE: 1" = 1'



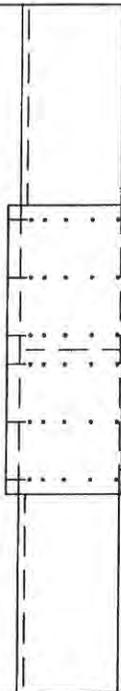
TYPICAL 42" HDPE PIPE - SDR 32.5  
PROFILE VIEW - SCALE: 1" = 10'



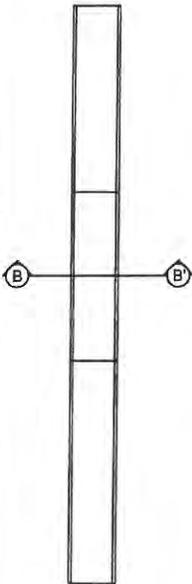
TYPICAL 42" HDPE PIPE - SDR 32.5  
PLAN VIEW - SCALE: 1" = 10'



TYPICAL CHANNEL CONNECTION  
PROFILE VIEW - SCALE: 1" = 2'



TYPICAL CHANNEL CONNECTION  
PLAN VIEW - SCALE: 1" = 10'



PRELIMINARY  
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CONSTRUCTION

No. Revisor/Issue Date



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JOB # PERCM33  
DATE: 6/20/2012  
DESIGNER: BAS  
CHKD BY: SA

NOT TO SCALE



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NAUGHTON POWER PLANT  
ASH TRANSPORT DETAIL  
**OPERATIONS PLAN**  
KEMMERER, WY

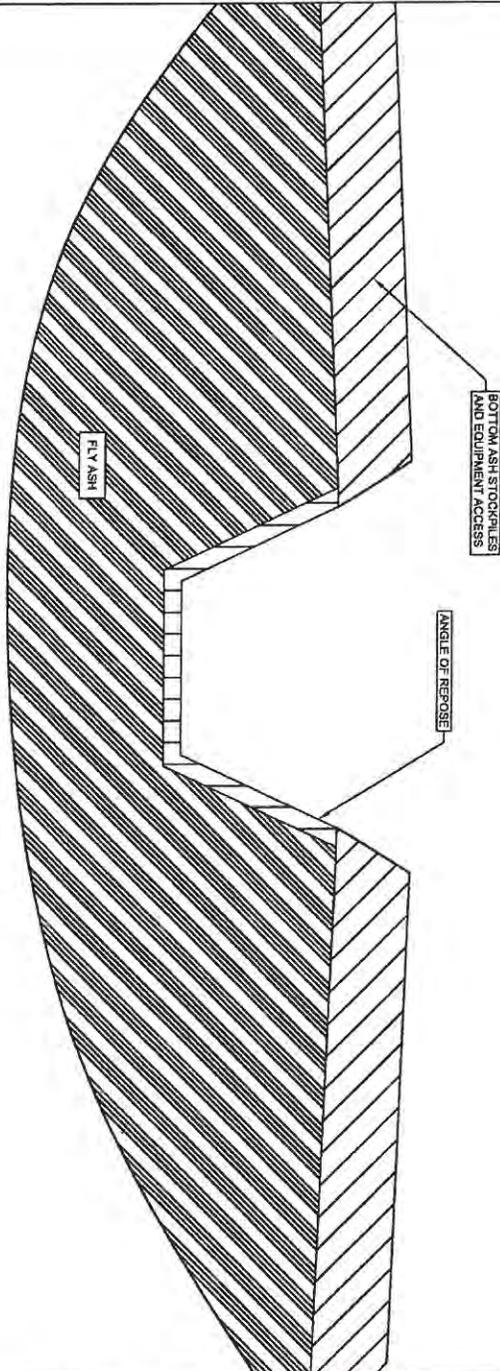
SHEET  
10 of 12

**D-2**

LEGEND

GENERAL NOTES

1. Push bottom ash from bottom ash collection areas to the desired location at the pond edge.
2. Dig temporary ditch back to bottom ash collection area from pond edge.
3. Bottom ash thickness will vary as needed.



JOB # PERCM33	NOT TO SCALE
DATE: 6/20/2012	
DESIGNER: BAS	
CHK'D BY: SMA	
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NAUGHTON POWER PLANT TEMPORARY DITCH DETAIL <b>DITCH DETAIL</b> KEMMERER, WY	

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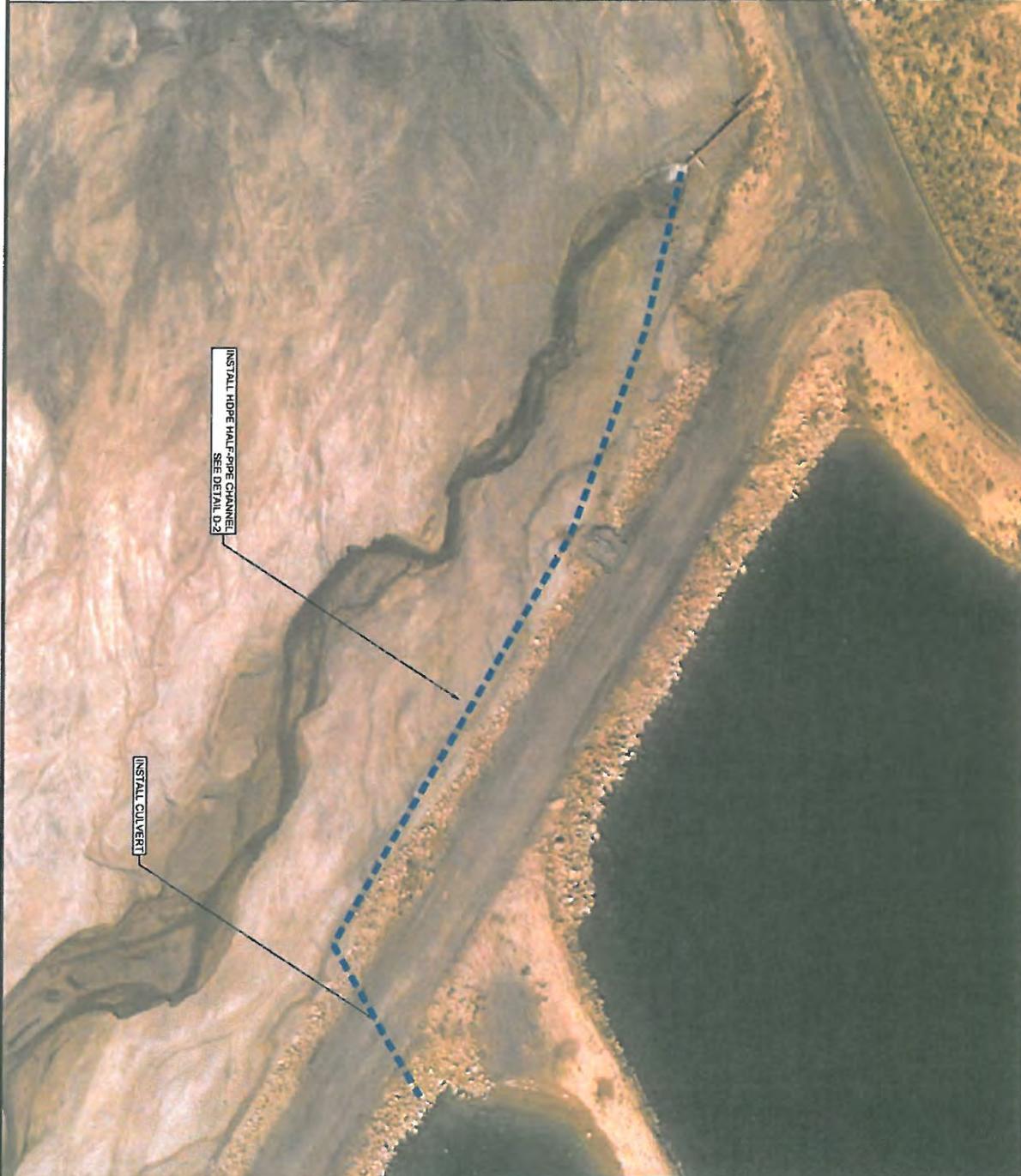
No.	Revision/Issue	Date

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SHEET 11 OF 12  
**D-3**

GENERAL NOTES

1. Install 350 ft of HDPE half pipe channel. Sizing to be determined by engineer and plant operations department.
2. Install 70 ft of CMP or equivalent culvert. Sizing to be determined by engineer.



SHEET  
12 of 12

JOB # PERCM33  
DATE: 6/20/2012  
DESIGNER: BAS  
CHKD BY: SMA

SCALE 1" = 40'



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Water & Environmental Technologies, PC, hereby certifies that the information contained herein was prepared by a duly licensed professional engineer or other qualified person, and that the engineer or other qualified person is duly licensed and qualified to perform the services described herein.

NAUGHTON POWER PLANT  
SOUTH POND BY-PASS DETAIL

**BY-PASS DETAIL**

KEMMERER, WY

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