EXHIBIT NO. ___(RJR-15)
DOCKETS UE-17____/UG-17____
2017 PSE GENERAL RATE CASE
WITNESS: RONALD J. ROBERTS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-17____** **Docket UG-17____**

FOURTEENTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

RONALD J. ROBERTS

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 13, 2017

February 7, 2012

Mr. James M. Parker
PPL Montana, LLC
303 North Broadway
Suite 400
Billings, MT 59101-1255

Feasibility Capital Cost Estimate
Colstrip Units 1-4 SCR Retrofit

Dear Mr. Parker:

PPL Montana (PPL) conducted a BART analysis to evaluate the cost effectiveness of adding emissions controls at the Colstrip Power Station (Colstrip) in response to the EPA's Federal Regional Haze Rule. The BART analysis considered retrofitting selective catalytic reduction (SCR) systems to all four Colstrip units in order to reduce NO_x emissions. As part of the BART analysis, PPL developed cost estimates for the retrofit technology using the EPA's Integrated Planning Model.

PPL retained the services of Burns & McDonnell (BMcD) to prepare independent feasibility capital cost estimates for the retrofit of selective catalytic reduction (SCR) technology on all four units at the Colstrip Power Station. PPL intends to use these feasibility capital cost estimates as a comparison tool to evaluate the retrofit costs developed as part of their BART analysis.

These cost estimates are based on an existing estimate for a representative SCR installation. The existing representative cost estimate is a recent, definitive cost estimate developed for a similar SCR retrofit project with a Combustion Engineering designed, tangentially-fired boiler that burns Powder River Basin coal. The boiler for this reference unit is approximately the size of Colstrip Units 3 and 4. Capital costs from the representative estimate were adjusted for the smaller Colstrip Unit 1 and 2 boilers and associated equipment.

The representative cost estimate has been adjusted for some site specific parameters based on a high level understanding of the differences between the Colstrip units and the representative unit. In general, the scope of the estimates is based on the information included in the Capital Cost Estimate Basis and Assumptions for SCR Retrofit, Attachment 1, as well as the preliminary layouts included in Attachment 2. The Capital Cost Estimate Basis and Assumptions document is not intended to address every detail of the scope of the Colstrip SCR projects, but generally outlines what is included in the capital cost estimates. The preliminary layouts are conceptual and further review of equipment sizing, ductwork routing, underground utilities/obstructions, constructability, maintenance access, etc. should be completed.

Costs were not included in the capital cost estimate for any of the following equipment:

- Rail siding and unloading equipment
- Limestone injection system
- Dry sorbent injection system

9400 Ward Parkway
Kansas City, Missouri 64114-3319
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http://www.burnsmcd.com

Rail facilities (rail siding and unloading equipment) may be required to accommodate rail deliveries of ammonia to reduce O&M costs and potential issues with high volumes of truck traffic associated with truck delivery of ammonia. A limestone injection system could be added if necessary to blend limestone with the coal to reduce the potential for SCR "catalyst blinding" due to Arsenic. A dry sorbent injection system could be added to inject hydrated lime into the flue gas stream downstream of the SCR to reduce the potential for SO_3 formation and the impact on plume visibility.

The addition of booster fans and AQCS equipment will change duct pressures in the existing boiler, economizer, air heater and associated ductwork. It is not unusual on these AQCS projects to reinforce the existing structures and/or modify the fan controls to accommodate the pressure design changes. We have included costs in the capital cost estimate for potential boiler implosion improvements. However Burns & McDonnell has not evaluated the boiler implosion impacts for the boiler draft system for these estimates. The National Fire Protection Association (NFPA) codes have also changed since the initial plant design. The cost of structural and control upgrades to account for boiler implosion is highly variable and cannot be confidently estimated without conducting a detailed site specific investigation including addressing the requirements of PPL's insurer.

Feasibility Capital Cost Estimates

The feasibility level capital cost estimates for the Colstrip units are presented in Table 1. The capital costs are shown in 2015 dollars with escalation and exclude financing fees and interest during construction (IDC). Further definition of the scope included in each cost estimate line is presented in Attachment 3. Additional assumptions for the cost estimates are included in Attachment 1.

Table 1: Feasibility Capital Cost Estimates – Not For Budgeting Purposes

PLANT	COLSTRIP	COLSTRIP	COLSTRIP	COLSTRIP
UNIT	1	2	3	4
CAPACITY (MW)	330	330	805	805
SCR	$20,000,000	$20,000,000	$32,000,000	$32,000,000
NEW ID/BOOSTER FANS	$8,000,000	$8,000,000	$12,000,000	$12,000,000
NEW AIR HEATER	$0	$0	$0	$0
CONC	$5,000,000	$5,000,000	$10,000,000	$9,000,000
STEEL	$13,000,000	$13,000,000	$26,000,000	$28,000,000
CS DUCTWORK	$32,000,000	$32,000,000	$76,000,000	$61,000,000
INSULATION	$6,000,000	$6,000,000	$14,000,000	$11,000,000
EQUIP INSTALL	$12,000,000	$12,000,000	$18,000,000	$18,000,000
CIVIL	$300,000	$300,000	$500,000	$500,000
PILING	$2,000,000	$2,000,000	$4,000,000	$3,000,000
ARCHITECTURAL	$2,000,000	$2,000,000	$3,000,000	$3,000,000
PIPE	$1,000,000	$1,000,000	$2,000,000	$2,000,000
ELECTRICAL & EQ	$10,000,000	$10,000,000	$16,000,000	$16,000,000
I&C	$1,000,000	$1,000,000	$1,000,000	$1,000,000
DEMOLITION	$1,000,000	$1,000,000	$2,000,000	$1,000,000
BOILER IMP./REINF	$3,000,000	$3,000,000	$4,000,000	$4,000,000
SUBTOTAL DIRECTS	**$116,000,000**	**$116,000,000**	**$221,000,000**	**$202,000,000**
MISC INDIRECTS	$6,000,000	$6,000,000	$11,000,000	$10,000,000
ENGINEERING	$12,000,000	$12,000,000	$22,000,000	$20,000,000
SUBTTL w/INDIRECTS	**$134,000,000**	**$134,000,000**	**$254,000,000**	**$232,000,000**
ESCALATION	$13,000,000	$13,000,000	$25,000,000	$23,000,000
CONTINGENCY	$29,000,000	$29,000,000	$56,000,000	$52,000,000
TTL w/o OWNER COST	**$176,000,000**	**$176,000,000**	**$335,000,000**	**$307,000,000**
OWNER COST	$27,000,000	$27,000,000	$51,000,000	$46,000,000
TTL w/ OWNER COST	**$203,000,000**	**$203,000,000**	**$386,000,000**	**$353,000,000**

Note: Estimate excludes financing fees and IDC.

Please do not hesitate to contact me at (816) 822-3157 if you have any questions or require additional support.

Sincerely,

David Bowen, P.E.
Project Manager

Attachment 1
Capital Cost Estimate Basis and Assumptions

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Capital Cost Estimate Basis and Assumptions for SCR Retrofit

General Project Information:	
Quality of Estimate:	Feasibility (FEP-1).
Project Description:	Selective catalytic reduction (SCR) system retrofit for NO_x emissions control.
Plant Description:	Unit 1&2 Nominal 330 MW (gross) Pulverized Coal. Unit 3&4 Nominal 805MW (gross) Pulverized Coal.
Type of Plant:	Utility grade reliability. Good maintenance access for equipment.
Boiler Manufacturer:	Combustion Engineering, Inc.
Boiler Type:	Tangential firing.
Heat Rejection:	Cooling Towers.
Project Location:	Existing Colstrip Power Plant near Colstrip, Montana.
Site Description:	Brownfield, plant flat terrain, other areas rolling.
Project COD date:	First Quarter 2015
Labor Type:	Union rates are assumed for cost estimate.
Contracting Method:	Multi-contract contracting method.
Scope Basis / Assumptions:	
General:	
Water Supply:	
Water Intake:	Existing Yellowstone River intake. Water is pumped 30 miles to surge pond (Castle Rock Lake). No upgrades are included.
Service Water:	Tie-in to the existing service water system. No upgrades are included.
Potable Water:	Tie-in to the existing potable water system. No upgrades are included.
Demin Water:	No modifications to existing facilities are included.
Fire Protection Water:	Tie-in to the existing fire water system. No upgrades are included.
Wastewater Disposal:	
Scrubber Process Wastewater:	No modifications to existing facilities are included.
Contaminated Wastewater:	Drains from the area around equipment that could be contaminated with oil will be directed to the existing wastewater system.
Sanitary Wastewater:	Not applicable. No tie-ins and upgrades are included.
Stormwater Discharge:	Existing stormwater drainage system will be modified as required for new structures. Stormwater will drain to existing system.
Start-up Fuel:	Unit 1 & 2 LPG, Unit 3 & 4 No.2 Diesel
Solid Fuel:	
Delivery:	Solid fuel is delivered to the plant by overland conveyor and truck. No modifications to existing system are included.
Dead Storage:	Solid fuel is stored in coal barn and uncovered outdoor piles in the existing coal storage system. No modifications to existing storage system are included.
Live Storage	Solid fuel is stored in uncovered outdoor piles in the existing coal storage system. No modifications to existing storage system are included.
Reagent Supply (Particulate Scrubber)	
Type:	Lime.
Storage:	No modifications to existing lime storage.
Fly Ash / Scrubber Byproduct Handling:	
Disposal:	
Economizer Fly Ash:	Modifications to existing economizer fly ash disposal system will include installation/replacement of large particle ash (LPA) screens.
SCR Reactor Fly Ash:	If space is available, fly ash will be collected in hoppers at the bottom of the SCR inlet ductwork. New ash collection system will be tied into existing dry fly ash collection system located downstream of the air heater and upstream of particulate scrubbers.
Particulate Scrubber Byproduct:	No modifications to existing scrubber byproduct disposal system.
Storage:	
Economizer Fly Ash:	No modifications to existing fly ash storage.
SCR Reactor Fly Ash:	Utilize existing dry fly ash storage.
Particulate Scrubber Byproduct:	No modifications to existing fly ash storage ponds.
Transportation:	
Economizer Fly Ash:	No modifications to existing fly ash transportation.
SCR Reactor Fly Ash:	Utilize existing dry fly ash system transportation.
Bottom Ash:	
Disposal:	No modifications to existing bottom ash disposal.
Storage:	No modifications to existing bottom ash storage.
Transportation:	No modifications to existing bottom ash transportation.
Ammonia:	
Type:	Anhydrous ammonia.
Vaporizers:	Electric.
Delivery:	Truck-based tanker trailer. Rail car unloading is not included.
Storage:	Storage tanks sized for approximately 14 days storage at 100% design fuel burn rate.

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Capital Cost Estimate Basis and Assumptions for SCR Retrofit

Sound Abatement:	No special provisions for noise attenuation above normal supply are included.
Asbestos, Lead & Other Haz Matls:	No costs for hazardous materials abatement are included.
Civil:	
Site Conditions:	Structures, foundations, concrete slabs-on-grade and underground utilities are typically located in the AQCS area. Further evaluation is needed should project proceed forward.
Layout Considerations:	Maintenance access roads, coal pile, underground utilities, and existing equipment and structures.
Disposal of Spoils:	Spoils will be disposed of on site. No hazardous materials are anticipated to be found in the soils.
Soil Conditions / Stability:	Existing soils are assumed to be stable in and around the area and suitable for use as lay down without any further preparation.
Cut & Fill:	Scrubber and chimney areas are relatively flat. Minimal cut and fill will be required.
Dewatering:	Dewatering will be with trash pumps located in excavations. No engineered dewatering system is included.
Construction Stormwater Control:	Silt fences will be required for construction erosion control and compliance with SWPPP. No other special erosion control methods are included.
Roads:	Existing roads in AQCS area will be rerouted as necessary to provide access to new AQCS and maintain access to existing equipment where possible. No other changes to existing roads are included. Watering of roads for dust control during construction is included.
Parking:	No modifications to existing facilities are included.
Rail Scale:	Not included.
Truck Scale:	Not included.
Landfill:	No modifications to existing on-site landfill are included.
Site Security:	Site security is existing. A chain link fence will be installed at the construction laydown areas as required.
Wetland Mitigation:	Not included.
Future Expansion:	Not applicable.
Landscaping:	No landscaping work is included. Disturbed areas that are not paved will be seeded for erosion control. No aesthetic landscaping included.
Rail Access:	No modifications to existing railroad facilities are included.
Truck Access:	Existing roads will be used for construction access. No upgrades are included.
Structural:	
Soil Bearing Capacity:	Soil Boring data has not been provided. A geotechnical study is included to determine foundation design recommendations for detailed design. Heavily loaded foundations are assumed to be on piles. Bearing capacity on natural soil or compacted fill is assumed to be greater than 2 ksf. All lightly loaded structure foundations are assumed to be spread footings or mats.
Soil Improvement:	Not required.
Piling:	Not included.
General Enclosures:	
Ash Load Out:	No modifications to existing ash load out.
SCR Reactor:	SCR Reactor catalyst lifting area will be enclosed for weather protection. Enclosure will consist of walls on three sides and a roof. Walls will not extend to grade. No HVAC is included.
Scrubber:	No modifications to existing scrubber enclosures.
Fans:	Booster fans will not be enclosed.
Air Compressors:	No modifications to existing air compressor enclosures.
Water Treatment Facilities:	Not included.
Administration Facilities:	Not Included.
Control Facilities:	Existing control consoles in Plant control room will be updated to control SCR components.
Warehouse Facilities:	Not included.
Maintenance Shop:	Not Included.
Yard Maintenance Building:	Not Included.
Electrical Enclosures:	All new electrical equipment will be located in Power Control Modules (PCM).
Chimney:	No modifications to existing chimneys.
Mechanical:	
Boiler Manufacturer:	Combustion Engineering, Inc.
Boiler Modifications:	
Boiler Implosion:	Design pressures and the Owner's insurer requirements for boiler air/gas system are unknown. Assumed costs have been included for potential control upgrades and/or reinforcing necessary to modify boilers and air heaters as required to meet new flue gas draft operating conditions. Assumed boiler implosion costs are to be verified by the Owner.
Fans:	
FD Fans:	No modifications to existing FD fans.
ID Fans:	No modifications to existing ID fans.
Booster Fans:	New Booster Fans are included.
Economizer:	No modifications to existing economizer except as required for boiler implosion.
Air Heaters:	No upgrades to baskets, seals, etc. are included.
Fire Protection:	Fire protection will be tied into the existing fire protection loop. No new pumps are included.

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Capital Cost Estimate Basis and Assumptions for SCR Retrofit

Compressed Air Supply	One desiccant type and one refrigerative type air dryer are included to existing compressed air system. One service air and one instrument air receiver tank are also included.
Fire Detection:	Fire detection is included in the electrical areas.
Water Storage:	
AQCS Service Water:	No additional water storage is included.
Condensate Storage:	No additional water storage is included.
Raw Water Storage:	No additional water storage is included.
Demineralized Water Storage:	No additional water storage is included.
Potable Water Storage:	No additional water storage is included.
Auxiliary Cooling:	No modifications to existing system included.
Coal Handling:	No modifications to existing system included.
Lime Handling:	
Preparation:	No modifications to existing system included.
SCR:	
Reactors:	Units 1&2: One reactor per unit. Units 3&4: One reactor per unit with common wall to maintain gas path separation. Reactors assumed to be sized for three initial layers of catalyst and one future layer.
Dampers:	Not Included.
SCR Reactor Bypass :	SCR bypass duct is not included.
SCR catalyst cleaning :	Sonic air horns.
SCR catalyst protection :	No special systems to protect catalyst from condensation during outages is included.
Emissions Control:	
Emissions Control:	
NOx:	Selective catalytic reduction to accomplish emissions of 0.06 lb/MMBtu NO_X.
SCR NOx Monitoring	SCR Inlet and Outlet NO_X monitoring added to aid in reagent usage and performance monitoring. NO_X analyzers and other non-reporting CEMS components are located in an at-grade enclosure.
Ammonia Slip:	Target 5 ppm at end of catalyst life.
CO:	Assumed to be controlled through good combustion practices.
Emissions Monitoring:	No modifications to existing reporting CEMS.
Electrical:	
Generator Step-up Transformers:	No modifications included.
Black Start Capability:	No modifications included.
Emergency Generator:	No modifications included.
Emergency Power:	No modifications included.
Back-up Power:	No modifications included.
Synchronization:	No modifications included.
Start-up Power Supply:	No modifications included.
Auxiliary Power Supply:	New System to supply power to new Booster Fans.
Low Voltage Motor Control Center Design:	New 480 volt MCC's for SCR, Fly Ash, Booster Fan auxiliaries, Ammonia Storage (tank farm).
Plant Control System:	The existing DCS will be expanded and modified to support the SCR additions, Booster Fan addition, and any work associated with the SCR project as necessary. Interface to existing combustion control, draft controls, and burner management controls will be via plant loop communication and hardwired signals as necessary.
Wire Routing:	Cable tray and conduit will be used in locations where overhead structural steel is available to support raceway. Duct bank is assumed for all other locations.
Plant Communications:	
External and Office to Office:	No modifications included.
Internal Around Plant:	The existing plant communication system will be extended into new SCR area.
Switchyard Communications:	No modifications included.
Transmission / Interconnection:	
Switchyard:	Existing system will be used. No modifications are included.
Transmission:	Existing system will be used. No modifications are included.
Commercial:	
General Liability Insurance:	Included.
Builder's Risk Insurance:	Included in Owner's Costs.
Performance Bonds:	Bonds are included for 100% of all construction contracts. No bonding is included for equipment contracts.
Project L/Ds:	Schedule and Performance for each contract.
Warranty:	Warranty on major equipment will be required for 1 year from commercial operation. Warranty on auxiliary equipment will be required for 18 months from substantial completion to the extent practical.
Construction Indirects:	
Performance Testing:	Included for all major components.
Commissioning / Start-up:	Included.
Permits:	Construction permits are included.

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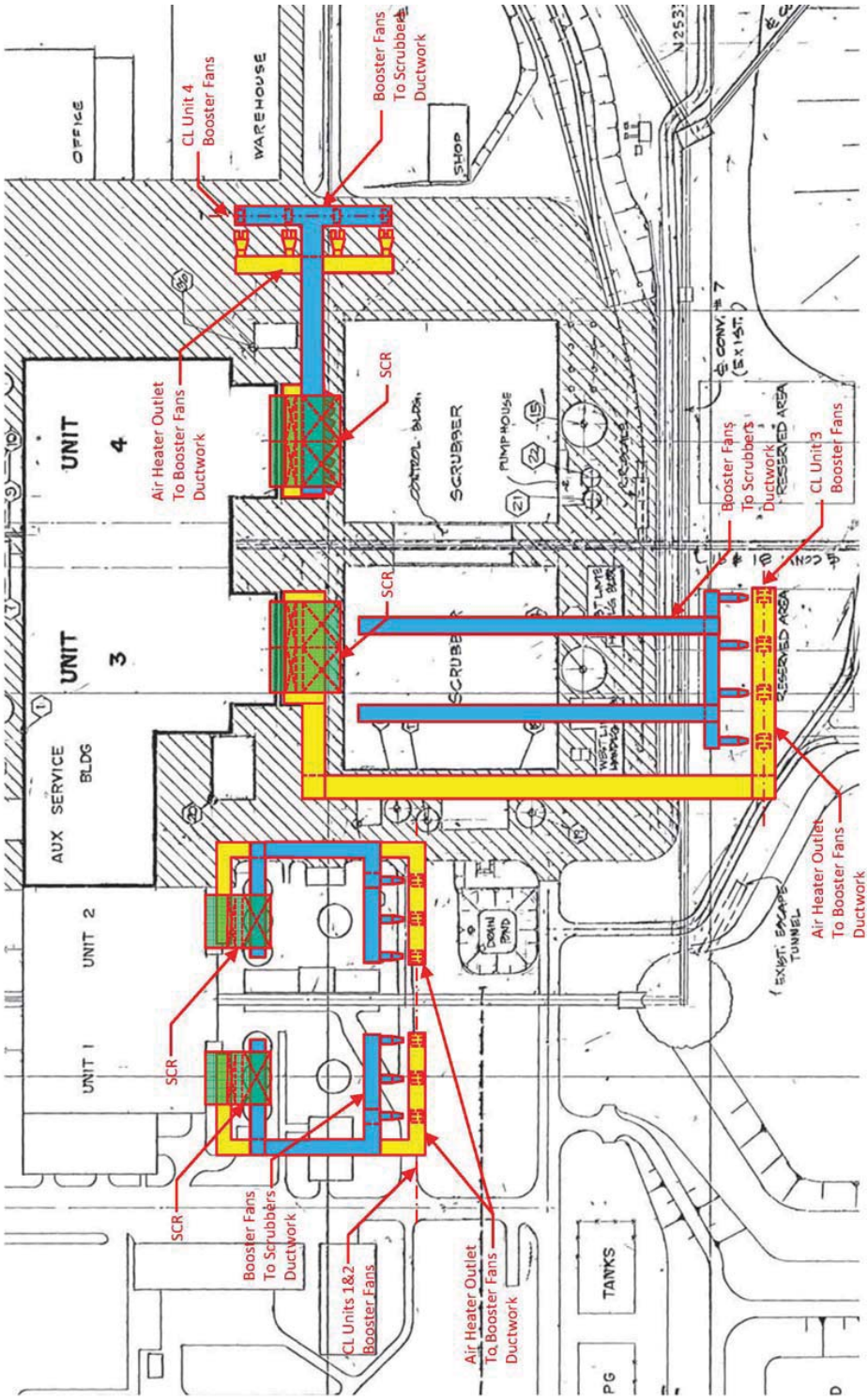
Capital Cost Estimate Basis and Assumptions for SCR Retrofit

Construction Utilities:	
Water Supply:	Water supply for construction will be from the existing water system, no consumptions fees included in Construction Indirects.
Construction Sanitary Facilities:	Portable facilities provided by Construction Contractors.
Construction Power:	Power supply for construction will be from a spare breaker or breakers in the existing plant switchgear. If any transformers are required for stepping down the voltage (i.e.. 6.9 kV/480 Volt), it is assumed they will be provided from the Owner's spares inventory. No consumption fees included in Construction Indirects.
Equipment Delivery:	Equipment will be delivered to the site via truck or rail.
Construction Work Schedule:	It is assumed that the construction schedule will be adequate to allow the project to be completed with minimal overtime. Construction schedule will be estimated as a 7x10 schedule. Outage work is anticipated to be 7 X 24 schedule.
Construction Management:	Limited CM assistance is included.
Construction Facilities:	Temporary construction trailers including offices and restrooms.
Project Indirects:	
Detail Project Engineering Costs:	Included.
Project Development:	Included in Owner's Costs.
Owner Operations Personnel:	Included in Owner's Costs.
Owner's Project Management:	Included in Owner's Costs.
Owner Engineering:	Included in Owner's Costs.
Owner Legal Counsel:	Included in Owner's Costs.
Operator Training:	Included in Owner's Costs.
Permitting & License Fees:	Included in Owner's Costs.
Land:	N/A
Water Rights Costs:	N/A
Labor Camp:	Included.
Start-up Costs:	
Initial Lime Inventory:	N/A
Initial Ammonia Inventory:	Included in Owner's Costs.
Site Security:	Included in Owner's Costs.
Operating Spare Parts:	Included in Owner's Costs.
Permanent Equipment & Furnishings:	
Workshop Tools & Test Equipment:	N/A
Warehouse Shelves:	N/A
Mobile Equipment, Vehicles:	N/A
Laboratory Equipment & Furniture:	N/A
Kitchen Furniture:	N/A
Locker Room Furniture:	N/A
Building Furniture:	N/A
Taxes:	Taxes including sales, use, gross receipts, property and other types are included in Owner's Costs.
IDC, AFUDC, Financing Fees:	Not Included.
Escalation:	Escalation has been included to COD at a rate of 5% for equipment and materials.
Owner's Contingency:	Included in Owner's Costs.
All Owner's Costs:	Included. To be verified by Owner.

Attachment 2
Conceptual Ductwork Layout Sketches

Burns & McDonnell
SINCE 1898

SKETCH 2-1 CONCEPTUAL DUCTWORK LAYOUT - PLAN



Burns & McDonnell
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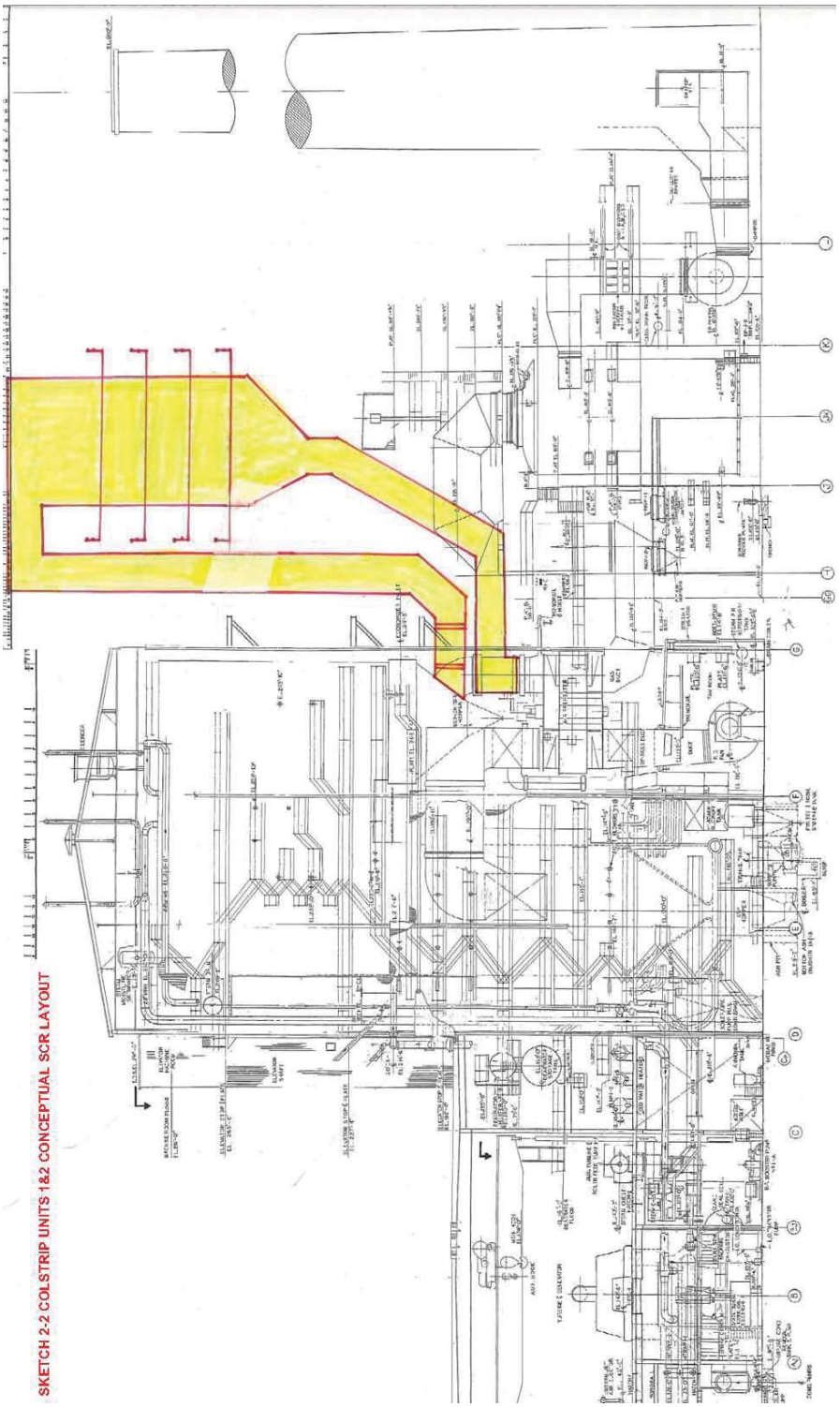
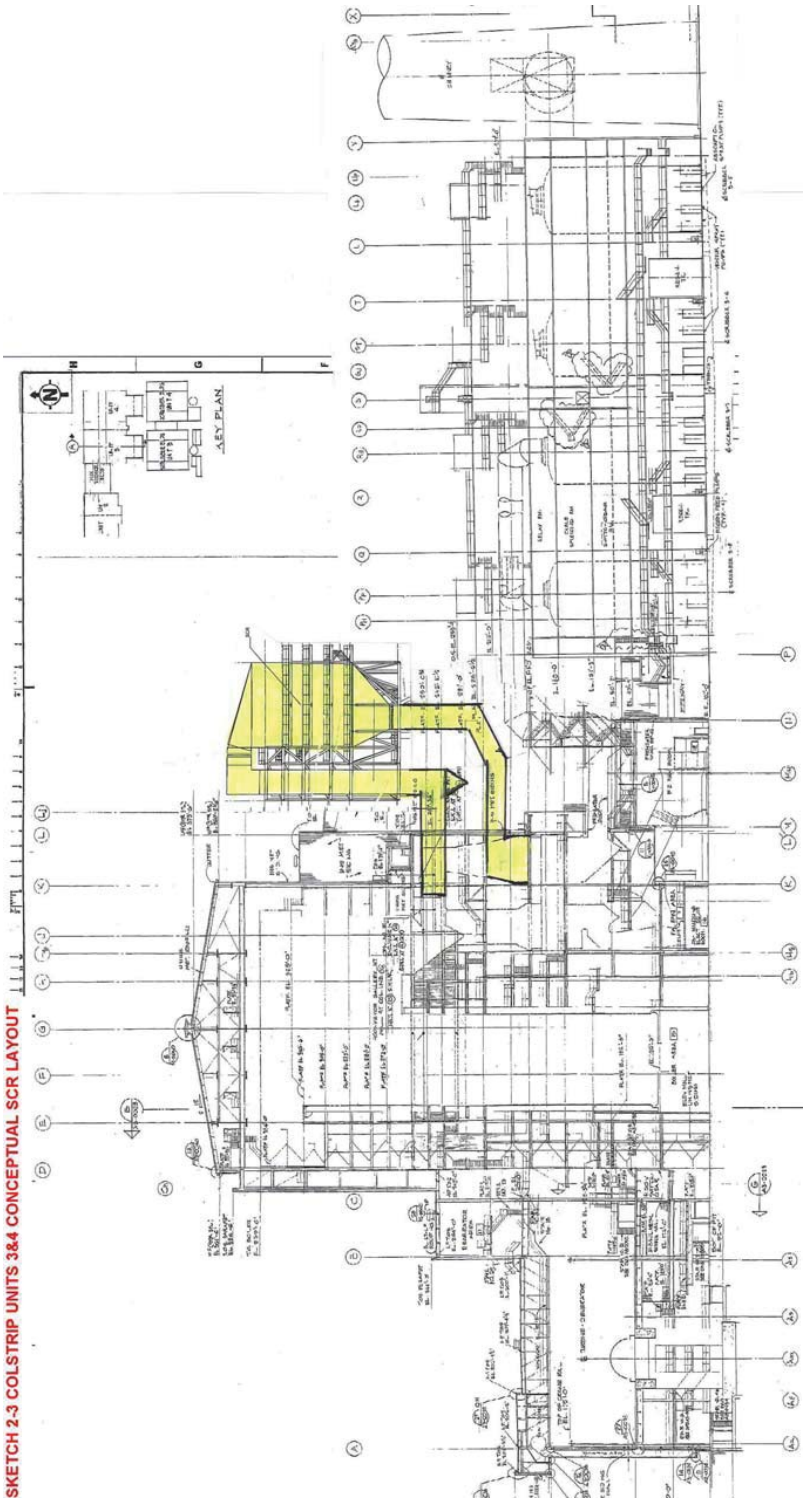


Burns & McDonnell
SINCE 1898



Attachment 3
Capital Cost Estimate Scope Breakout

PLANT	COLSTRIP	COLSTRIP	COLSTRIP	COLSTRIP
UNIT	1	2	3	4
CAPACITY (MW)	330	330	805	805
SCR (Furn. only)	$20,000,000	$20,000,000	$32,000,000	$32,000,000
SCR Reactor				
Large Particle Ash Screens				
SCR Catalyst				
Sonic Horns				
Sonic Horn Access Platforms				
Catalyst Removal/Install Hoists				
NH3 Vaporizer Skid				
AFCU Skid				
NH3 Distribution Header				
SCR NH3 Inj. Grid				
Physical Flow Modeling				
NH3 Unloading Sta.				
NH3 Storage Tanks				
NH3 Forwarding Skid				
Fly Ash System Mods				
NEW ID/BOOSTER FANS (Furn. only)	$8,000,000	$8,000,000	$12,000,000	$12,000,000
Booster Fans				
Booster Fan Motors				
Lube Oil Cooling				
NEW AIR HEATER (Furn. only)	$0	$0	$0	$0
Replacement Air Heater (not applicable)				
CONC (F&E)	$5,000,000	$5,000,000	$10,000,000	$9,000,000
Concrete				
Reinforcement				
Anchor Bolts				
Formwork				
Excavation & Backfill				
STEEL (F&E)	$13,000,000	$13,000,000	$26,000,000	$28,000,000
SCR Reactor Support Steel				
SCR Reactor Stair Towers				
Ductwork Support Steel				
Existing Support Steel Mods				
Access Platforms, Stairs, Ladders				

PLANT UNIT	COLSTRIP 1	COLSTRIP 2	COLSTRIP 3	COLSTRIP 4
CS DUCTWORK (F&E) Ductwork (Econ Outlet to SCR Inlet) Ductwork (SCR Outlet to AH Inlet) Ductwork (AH Outlet to Booster Fan Inlet) Ductwork (Booster Fan Outlet to Scrubber Inlet) CS Ductwork Expansion Joints	$32,000,000	$32,000,000	$76,000,000	$61,000,000
INSULATION (F&E) SCR Reactor Insulation & Lagging Ductwork Insulation & Lagging Equipment Insulation & Lagging Piping Insulation	$6,000,000	$6,000,000	$14,000,000	$11,000,000
EQUIP INSTALL (Erect. only) SCR Equipment ID/Booster Fan Equipment	$12,000,000	$12,000,000	$18,000,000	$18,000,000
CIVIL (F&E) Clearing & Grubbing Sitework Cut & Fill Underground Utility Relocations Stormwater Drainage System Modifications Site Finishing Roadway Modifications	$300,000	$300,000	$500,000	$500,000
PILING (F&E) Foundation Piling	$2,000,000	$2,000,000	$4,000,000	$3,000,000
ARCHITECTURAL (F&E) Catalyst Lifting Area Wall & Roof Panels Painting	$2,000,000	$2,000,000	$3,000,000	$3,000,000
PIPE (F&E) BOP Piping Pipe Supports Pipe Specials Valves	$1,000,000	$1,000,000	$2,000,000	$2,000,000

PLANT	COLSTRIP	COLSTRIP	COLSTRIP	COLSTRIP
UNIT	1	2	3	4
ELECTRICAL & EQ (F&E)	$10,000,000	$10,000,000	$16,000,000	$16,000,000
Aux Transformer				
Power Control Modules				
MCC's				
SUS Transformers				
Electrical Commodities (cable, elect. tray, conduit, etc…)				
Pipe Freeze Protection				
Fire Detection (electrical areas)				
Lighting				
Communication				
Grounding				
Cathodic Protection				
I&C (F&E)	$1,000,000	$1,000,000	$1,000,000	$1,000,000
DCS Integration				
BOP Instruments				
DEMOLITION	$1,000,000	$1,000,000	$2,000,000	$1,000,000
Demo Existing Structures (as req'd for installation)				
Demo Existing Equipment (as req'd for installation)				
Demo Existing Foundations (as req'd for installation)				
BOILER IMP./REINFORCE (F&E)	$3,000,000	$3,000,000	$4,000,000	$4,000,000
Boiler Implosion/Reinf.				
Air Heater Imp./Reinf.				
Ductwork (upstream A.H. flue gas inlet) Imp./Reinf.				
SUBTOTAL DIRECTS	**$116,000,000**	**$116,000,000**	**$221,000,000**	**$202,000,000**
MISC INDIRECTS	$6,000,000	$6,000,000	$11,000,000	$10,000,000
ENGINEERING	$12,000,000	$12,000,000	$22,000,000	$20,000,000
SUBTOTAL w/INDIRECTS	**$134,000,000**	**$134,000,000**	**$254,000,000**	**$232,000,000**
ESCALATION	$13,000,000	$13,000,000	$25,000,000	$23,000,000
CONTINGENCY	$29,000,000	$29,000,000	$56,000,000	$52,000,000
TOTAL w/o OWNER COST	**$176,000,000**	**$176,000,000**	**$335,000,000**	**$307,000,000**
OWNER COST	$27,000,000	$27,000,000	$51,000,000	$46,000,000
TOTAL w/ OWNER COST	**$203,000,000**	**$203,000,000**	**$386,000,000**	**$353,000,000**