

Demolition/Relocation Requirements Unit 1

1.0 Introduction

The purpose of this description is to describe the conceptual demolition and/or relocation requirements of the Mill Creek Plant existing site structures. The description covers, in general, the work involving the major items to be demolished or relocated. The following demolitions/relocations activities are listed in the sequential order they will be performed. In addition, it is expected that numerous small individual components, such as stairs, ladders, ductwork sections, ground slabs, etc., will require demolition and/or relocation to complete the works included in the scope of the Phase II AQC study. The specific impact on any one existing structure cannot be determined until the new equipment and structures have been procured and designed. Therefore, actual demolition/relocation requirements, including order of activities, will be determined during detailed design.

2.0 Requirements

2.1 Unit 1 Electrostatic Precipitator

The existing Unit 1 Electrostatic Precipitator (ESP) will be demolished to make room for the Unit 1 Selective Catalytic Reduction (SCR). Before demolition of the Unit 1 ESP, installation of the Unit 1 Pulse Jet Fabric Filter (PJFF) must be completed and a duct bypassing of the ESP is to be added during a unit outage.

The degree of demolition of the existing support structure for the Unit 1 ESP will be coordinated with support requirements for the SCR to replace it as well as the stability of the existing building. To the extent practical, the existing foundations and steel beneath the ESP will be incorporated into the design of the supports for the SCR. All demolition below the ESP will be selective in nature to accommodate new supports and building stability; wholesale demolition will likely not be acceptable. The body of the ESP extends through the roof above the fan room in the Boiler Building. Roof steel removed to allow demolition of the ESP and its supports will have to be replaced and/or augmented with new steel to close the building weathertight upon installation of the SCR.

In addition, selective demolition and removal of wall panel and girts will be required at the east wall of the Boiler Building proper to accommodate installation of the ductwork between the economizer outlet and the SCR. The existing ductwork above the air heater will also be modified to align and tie into the new SCR inlet ductwork.

2.2 Unit 1 ID and Booster Fans

The existing ID fans and booster fans at Unit 1 will be bypassed by new ductwork connecting the air heater outlet and the new pulse PJFF. However, the size of the existing ID fans will likely require their removal in order to route new ductwork through this area. The need for removal of the existing ID fans to allow passage of new ductwork will be confirmed at time of detailed design. Similarly, the booster fans will not be required in the new arrangement and the space they occupy may be needed for new ductwork supports or ancillary structures like stair towers serving PJFF. Again, if it is determined during detailed design that the space currently occupied by the Unit 1 booster fans is required for other uses, these fans will be removed. In the case of both sets of fans, the foundations beneath them will only be demolished to the extent required to install the new equipment and establish maintenance access. Foundations which do not impact the new configuration will be abandoned in place.

Demolition/Relocation Requirements Unit 2

1.0 Introduction

The purpose of this description is to describe the conceptual demolition and/or relocation requirements of the Mill Creek Plant existing site structures. The description covers, in general, the work involving the major items to be demolished or relocated. The following demolition/relocation activities are listed in the sequential order they will be performed. In addition, it is expected that numerous small individual components, such as stairs, ladders, ductwork sections, ground slabs, etc., will require demolition and/or relocation to complete the work included in the scope of the Phase II AQC study. The specific impact on any one existing structure cannot be determined until the new equipment and structures have been procured and designed. Therefore, actual demolition/relocation requirements, including the sequence of execution, will be determined during detailed design.

2.0 Requirements

2.1 Unit 1 & 2 345KV Overhead Transmission Line

A section of the existing Unit 1 & 2 345KV Overhead Transmission Line must be relocated to provide adequate clearance around the new Unit 2 AQCS buildings and equipment as well as for ease of construction and crane access. Demolition/relocation of the Unit 1 & 2 345kV transmission line needs to occur prior to start of construction on Unit 2. The proposed length of transmission line to be relocated and its conceptual new location are shown on Drawings 168908-MCDS-1000A and 1000B.

2.2 Unit 1 & 2 Auxiliary Boiler Building

The existing Unit 1 & 2 Auxiliary Boiler Building must be demolished to make room for Unit 2 PJFF plus allow crane access the new Unit 2 equipment. Demolition of the Unit 1 & 2 Auxiliary Boiler building needs to occur prior to start of construction on Unit 2. If necessary, this can be performed before or during the relocation of the Unit 1& 2 345kV transmission line. Foundations for the new PJFF will occupy portions of the area currently occupied by the Auxiliary Boiler Building requiring demolition and removal of the foundation and any attendant underground utilities as well as the building superstructure. This building will not be replaced.

2.3 Unit 2 Electrostatic Precipitator

The existing Unit 2 Electrostatic Precipitator (ESP) will be demolished to make room for the Unit 2 Selective Catalytic Reduction (SCR). Before demolition of the Unit 2 ESP, installation of the Unit 2 Pulse Jet Fabric Filter (PJFF) must be completed and a duct bypassing of the ESP added during a unit outage.

The degree of demolition of the existing support structure for the Unit 2 ESP will be coordinated with support requirements for the SCR to replace it as well as the stability of the existing building. To the extent practical, the existing foundations and steel beneath the ESP will be incorporated into the design of the supports for the SCR. All demolition below the ESP will be selective in nature to accommodate new supports and building stability; wholesale demolition will likely not be acceptable. The body of the ESP extends through the roof above the fan room in the Boiler Building. Roof steel removed to allow demolition of the ESP and its supports will have to be replaced and/or augmented with new steel to close the building weathertight upon installation of the SCR.

In addition, selective demolition and removal of wall panel and girts will be required at the east wall of the Boiler Building proper to accommodate installation of the ductwork between the economizer outlet and the SCR. The existing ductwork above the air heater will also be modified to align and tie into the new SCR inlet ductwork.

2.4 Unit 2 ID and Booster Fans

The existing ID fans and booster fans at Unit 2 will be bypassed by new ductwork connecting the air heater outlet and the new PJFF. However, the size of the existing ID fans will likely require their removal in order to route new ductwork in the same area. The need for removal of the existing ID fans to allow passage of new ductwork will be confirmed at time of detailed design. Similarly, the existing booster fans will not be required in the new arrangement and the space they occupy may be needed for new ductwork supports or ancillary structures like stair towers serving PJFF. If it is determined during detailed design that the space currently occupied by the Unit 2 booster fans is required for other uses, these fans will be removed. In the case of both sets of fans, the foundations beneath them will only be demolished to the extent required to install the new equipment and establish maintenance access around it. Foundations which do not impact the new configuration will be abandoned in place.

Demolition/Relocation Requirements Unit 3

1.0 Introduction

The purpose of this description is to describe the conceptual demolition and/or relocation requirements of the Mill Creek Plant existing site structures. The description covers, in general, the work involving the major items to be demolished or relocated. The following demolition/relocation activities are listed in the sequential order they will be performed. In addition, it is expected that numerous small individual components, such as stairs, ladders, ductwork sections, ground slabs, etc., will require demolition and/or relocation to complete the work included in the scope of the Phase II AQC study. The specific impact on any one existing structure cannot be determined until the new equipment and structures have been procured and designed. Therefore, actual demolition/relocation requirements, including sequence of execution, will be determined during detailed design.

2.0 Requirements

2.1 Unit 3 Wet Scrubber

The existing Unit 3 Wet Scrubber is to be demolished to make room for Unit 3 Pulse Jet Fabric Filter (PJFF). Before the Unit 3 Wet Scrubber can be demolished, the new Unit 4 AQC equipment and balance of plant systems must be completed to allow the existing Unit 4 Scrubber to be taken offline. The existing Unit 4 Scrubber will then be refurbished and new ductwork routed from its inlets to the existing Unit 3 ID Fans. Demolition of the existing Unit 3 Wet Scrubber will be completed with Unit 3 on line with the refurbished Unit 4 Scrubber re-purposed as a component of the Unit 3 AQC train.

The Unit 3 Wet Scrubber is supported on an extensive below-grade substructure. In addition to the removal of the scrubber superstructure, major portions of the substructure may require demolition or modification. Evaluation of the existing substructure will be coordinated with the design of the new structure supporting the Unit 3 PJFF. To the practical extent, the existing concrete substructure will be incorporated into the new PJFF support structure foundation in order to minimize demolition. Wherever practical, in particular the perimeter walls, the existing substructure will be abandoned in place and any open volume filled to grade with properly compacted fill.

2.2 Outside Rail Loop

The existing Outside Rail Loop which is currently used, will be partially demolished to the extent required to make room for Unit 3 PJFF foundations and structural supports. The size and configuration of the PJFF foundation and support structure is dependent on the actual size of the Unit 3 PJFF. To the extent practical, the design of the structure supporting the PJFF will take into account the location of the outside rail loop and avoid it. The impact, if any, of new construction on the outside rail loop cannot be determined until detailed design. If necessary, this can be performed before or during the demolition of the Unit 3 Wet Scrubber. If the outside rail loop is interrupted by installation of the PJFF support structure, the ends of the remaining track will require rail stops or some other positive means of preventing damage to the structure by an inadvertently mis-routed train segment. In no case will the new construction be allowed to permanently impact operation of the inner (coal delivery) rail loop.

Demolition/Relocation Requirements Unit 4 - Arrangement A

1.0 Introduction

The purpose of this description is to describe the conceptual demolition and/or relocation requirements of the Mill Creek Plant existing site structures. The description covers, in general, the work involving the major items to be demolished or relocated. The following demolition/relocation activities are listed in the sequential order they will be performed. In addition, it is expected that numerous small individual components, such as stairs, ladders, ductwork sections, ground slabs, etc., will require demolition and/or relocation to complete the work included in the scope of the Phase II AQC study. The specific impact on any one existing structure cannot be determined until the new equipment and structures have been procured and designed. Therefore, actual demolition/relocation requirements, including sequence of execution, will be determined during detailed design.

2.0 Requirements

2.1 Unit 3 & 4 345KV Overhead Transmission Line

A section of the existing Unit 3 & 4 345KV Overhead Transmission Line will be relocated to establish proper clearance around new Unit 4 AQCS buildings and equipment as well as for ease of construction and crane access. Demolition of the Unit 3 & 4 345kV transmission line needs to occur prior to start of construction on Unit 4. The proposed length of transmission line to be relocated and its conceptual new location are shown on Drawings 168908-MCDS-1000A and 1000B.

2.2 Existing Ammonia Storage Facility

The existing Ammonia Storage Facility, including the Ammonia Storage Electrical Building, must be relocated to make room for Unit 4 WFGD and associated equipment. Demolition/relocation of the existing Ammonia Storage Facility needs to occur prior to start of construction on Unit 4. Ammonia supply to Unit 3 and 4 must be available on a continuous basis during the relocation of the storage and supply system and therefore will need to be carefully coordinated, schedule, and staggered. If necessary, this can be performed before or during the relocation of the Unit 3 & 4 345kV transmission line. Foundations for the new AQC equipment will occupy portions of the area currently occupied by the Storage Building, requiring demolition and removal of the building and tank foundations, including attendant underground utilities.

2.3 Thickener Base

The existing Thickener Base is no longer in use will be demolished to make room for the Unit 4 Pulse Jet Fabric Filter (PJFF) and associated equipment. Due to the size of the thickener base and the substantial substructure in the center, demolition will be limited to the amount necessary to accommodate new construction and maintain access through the area. Except as otherwise required, the below-grade portion of the thickener base will be abandoned in place, filled with flowable fill as required, and topped with pavement or aggregate surfacing. Demolition of the existing Thickener Base needs to occur prior to start of construction on Unit 4. If necessary, this can be performed before or during the relocation of the Unit 3 & 4 345kV transmission line and/or the existing Ammonia Storage Facility.

2.4 Flocculent Feed Building

The existing Flocculent Feed Building lies in an area between the slurry pipe rack and the limestone conveyor. Although it does not rest in the footprint of new Unit 4 equipment, its location is ideal for placing a large crane to construct the new PJFF and the ductwork west of the Reagent Prep Building. The Flocculent Feed Building is currently not in use and, if necessary, the superstructure and foundation could be demolished if warranted by the improvement in crane access. The need for demolition of this building will be determined at time of final construction planning and sequencing. At this time, the cost of demolition of this building is included in the cost estimate.

Demolition/Relocation Requirements Unit 4 - Arrangement B

1.0 Introduction

The purpose of this description is to describe the conceptual demolition and/or relocation requirements of the Mill Creek Plant existing site structures. The description covers, in general, the work involving the major items to be demolished or relocated. The following demolition/relocation activities are listed in the sequential order they will be performed. In addition, it is expected that numerous small individual components, such as stairs, ladders, ductwork sections, ground slabs, etc., will require demolition and/or relocation to complete the work included in the scope of the Phase II AQC study. The specific impact on any one existing structure cannot be determined until the new equipment and structures have been procured and designed. Therefore, actual demolition/relocation requirements, including sequence of execution, will be determined during detailed design.

2.0 Requirements

2.1 Annex Building

The existing Annex Building will be demolished to make room for the new Unit 4 WFGD and associated equipment. Demolition of the Annex Building needs to occur prior to start of construction on Unit 4 to maximize access to areas of new construction. The Annex Building will be replaced by new facilities located in the area of the existing Warehouse and Loading Dock at the north end of the Unit 2. However, if the existing warehouse can be cost effectively remodeled to accommodate the function of the existing Annex Building, the functions of the Annex Building will be moved to the warehouse. For the basis of the cost estimate, a new Annex building will be constructed. Foundations for the new AQC equipment will occupy portions of the area currently occupied by the Annex Building, requiring demolition and removal of the building and its foundation, including attendant underground utilities.

2.2 Sample Lab

The existing Sample Lab will be demolished to make room for the new Unit 4 WFGD and associated equipment. Demolition of the existing Sample Lab needs to occur prior to start of construction on Unit 4 to maximize access to areas of new construction. The Sample Lab will be replaced by new facilities located in the area of the existing Warehouse and Loading Dock. However, if the existing warehouse can be cost effectively remodeled to accommodate the function of the existing Sample Lab, the functions of the Sample Lab will be moved to the warehouse. For the basis of the cost estimate, a new Sample Lab will be constructed. Foundations for the new AQC equipment will occupy portions of the area currently occupied by the Sample Lab,

requiring demolition and removal of the building and its foundation, including attendant underground utilities.

2.3 Unit 4 Auxiliary Boiler Building

The existing Unit 4 Auxiliary Boiler Building (currently used for storage) is to be demolished to make room for Unit 4 AQCS equipment. Demolition of the existing Unit 4 Auxiliary Boiler Building needs to occur prior to start of construction to maximize access to areas of new construction at Unit 4. Foundations for the new AQC equipment will occupy portions of the area currently occupied by the Auxiliary Boiler Building, requiring demolition and removal of the building and its foundation, including attendant underground utilities. This building will not be replaced.

2.4 Warehouse and Loading Dock

The existing Warehouse and Loading Dock is to be demolished or remodeled to accommodate a new Annex and Sample Lab. Demolition or remodeling of the existing Warehouse and Loading Dock needs to occur prior to start of construction on Unit 4 to allow early demolition of the existing Annex Building and Sample Lab. The Warehouse and Loading Dock will be replaced with a new multifunctional warehouse and loading dock located in the parking lot northeast of Unit 2 along the main entrance road. The proposed location of the new Warehouse and Loading Dock is shown on Drawings 168908-MCDS-1000A and 1000B.

The acceptability of using the warehouse shell to house the functions currently residing in the Sample Lab and Annex Building must be determined as a part of detailed design. The decision must take into account the cost effectiveness of adding necessary utilities, plumbing, drains, and HVAC as well as the physical space required to replace the two buildings. If determined not cost effective, it is likely both the warehouse superstructure and the foundation will be demolished due to the difficulty expected in trying to utilize the existing foundation for the new Annex and Lab buildings. In either case, the existing loading dock will no longer be in an easily accessible or useful location and this component will be demolished. For the basis of the cost estimate, the existing superstructure and foundation of the existing Warehouse and Loading Dock will be demolished.

The cost of a new replacement Warehouse and Loading Dock is included in the estimate for Unit 4 Arrangement 4B. However, as a part of the detailed design for the ancillary buildings, consideration should be given to relocating the existing warehouse superstructure to a new foundation at the location of the new warehouse. This would be in lieu of erecting a totally new superstructure at that location. This building approach may offer a relatively significant reduction in cost. Consideration must be given to the requirements in both size and operation determined for the new warehouse and the ability of the existing warehouse shell to accommodate them.

2.5 Flocculent Feed Building

The existing Flocculent Feed Building lies in an area between the slurry pipe rack and the limestone conveyor. Although it does not rest in the footprint of new Unit 4 equipment, its location is ideal for placing a large crane to construct the new AQC equipment south of the Unit 4 Boiler Building. The Flocculent Feed Building is currently not in use and, if necessary, the superstructure and foundation could be demolished if warranted by the improvement in crane access. The need for demolition of this building will be determined at time of final construction planning and sequencing. At this time, the cost of demolition of this building is included in the cost estimate.