Midnite Mine Superfund Site

100~~90~~ Percent Design

Appendix AA – Temporary Power Distribution and Submersible Dewatering Pump Controls

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ATTACHMENT

LIST OF ACRONYMS

BODR	Basis of Design Report
CD	Consent Decree
CSZ	Construction Support Zone
EPA	Environmental Protection Agency
gpm	gallons per minute
GSR	green and sustainable remediation
NPDES	National Pollutant Discharge Elimination System
P&ID	process and instrumentation diagram
PS	Performance Standard
RA	Remedial Action
RD	Remedial Design
Site	Midnite Mine Superfund Site
SOW	Statement of Work
WTP	Water Treatment Plant

AA1.0 INTRODUCTION

Appendix AA to the Midnite Mine Superfund Site Basis of Design Report (BODR) summarizes the existing power distribution network at the Midnite Mine Superfund Site (Site) available for use by the Selected Contractor for delivery of temporary power to the Site during early phases of the Remedial Action (RA). Also included is a summary of the pump controls powered by the network during the various phases of the RA construction and following RA completion (when the Site is in its permanent configuration).

The final power distribution system design will be completed with design of the new Water Treatment Plant (WTP). The WTP design has been delayed because the National Pollutant Discharge Elimination System (NPDES) permit for discharge offsite has not been approved. As a result, on May 20, 2014, a letter was sent to the Environmental Protection Agency (EPA) requesting a delay in the design of the WTP. The WTP design delay was approved in a letter from EPA dated July 8, 2014. The power requirements for the WTP and associated power distribution will be finalized once the NPDES permit is issued. At that point, all the WTP equipment and their power requirements will be known and the line(s) can be appropriately sized for the final power distribution system design.

The next phase of the WTP design (the 90% design) also will include the design of the~~designs for: (1) the permanent power distribution system, (2) the permanent locations for the pump control panels, and (3)~~ communication lines (e.g., fiber optic) from the permanent pump control panels to the WTP. It is envisioned that the permanent power distribution system ~~(1)~~ and the communication lines ~~(2)~~ will maintain the same routing/alignment and therefore will be designed ~~during the next phase~~ in parallel during the 90% design of~~. The power requirements for~~ the WTP~~. and associated power distribution will be finalized once the NPDES permit is issued. At that point, all the treatment equipment and its power requirements will be known and the line(s) can be appropriately sized.~~

This appendix includes:

- A description of the Section 11 design drawings
- A discussion of how this appendix addresses the Consent Decree (CD) Performance Standards ~~(PSs)~~
- A discussion of the Temporary Power Distribution

- A summary of the Submersible Dewatering Pump Controls
- Green and Sustainable Remediation (GSR) considerations

The power line design criteria are included in Attachment AA-1.

AA2.0 PERFORMANCE STANDARDS

There are no specific performance standards~~PSs~~ defined in the CD SOW that apply to temporary power distribution at the Site. There are several performance standards~~PSs~~ that apply to pumps or conveyance systems for collection and treatment of impacted surface water and groundwater. However, none of these specifically recommend equipment (including pumps). These general dewatering performance standards~~PSs~~ are addressed in the RD and are summarized in various general and specific performance standards~~PSs~~ included in Table 4-6 of the BODR.

AA3.0 ENGINEERING DESIGN DRAWINGS

The engineering~~90 percent~~ design drawings are contained~~presented~~ in Volume II~~2~~ of the BODR. The drawings for the existing~~this report~~ and temporary power and submersible pump controls are listed on Table AA-1~~:2.~~

Table AA-1 – Existing and Temporary Power and Submersible Dewatering Pump Controls – Engineering Design Drawings

Temporary Power	
11-1	EXISTING POWER LINE MIDNITE MINE SITE
11-2	PUMP SCHEDULE
Submersible Dewatering Pump Controls	
11-3	ELECTRICAL P&ID LEGEND
11-4	ELECTRICAL P&ID EXISTING STRUCTURES~~CONDITIONS~~
11-5	ELECTRICAL PHASE 1~~2~~ P&ID (START)
11-6	ELECTRICAL PHASE 2~~3~~ P&ID (START)
11-7	ELECTRICAL PHASE 3 P&ID (START)
11-8	ELECTRICAL PHASE 3 P&ID (END)
11-9~~7~~	ELECTRICAL P&ID END OF REMEDIAL ACTION~~CONSTRUCTION~~
11-10~~8~~	ELECTRICAL TYPICAL PLC PANEL LAYOUT
11-11~~9~~	ELECTRICAL PLC AC/DC WIRING DIAGRAM
11-12~~10~~	ELECTRICAL PLC ANALOG INPUT WIRING DIAGRAM
11-13~~11~~	ELECTRICAL PLC DISCRETE I/O WIRING DIAGRAM
11-14~~12~~	ELECTRICAL LEGEND AND NOTES
11-15~~13~~	ELECTRICAL PANEL MOUNTING SKID DETAILS ~~(~~1 ~~OF 2)~~
11-16~~14~~	ELECTRICAL PANEL MOUNTING SKID DETAILS ~~(~~2 ~~OF 2)~~

11-1715	ELECTRICAL DUPLEX FVNR CONTROL SCHEMATIC
11-1816	ELECTRICAL SIMPLEX FVNR CONTROL SCHEMATIC

AA4.0 TEMPORARY POWER DISTRIBUTION AND SUBMERSIBLE DEWATERING PUMP CONTROLS DESIGN

AA4.1 Temporary Power Distribution

Temporary power lines will be constructed to provide electricity to the existing WTP (and outbuildings where needed), associated dewatering pumps/controls, and the construction support zone (CSZ) throughout early phases of RA construction until the permanent power system is available near the end of Phase 1 of RA construction. Temporary power lines shall be used instead of gasoline- or diesel-powered generators wherever feasible to reduce air emissions. Prior to initiatingfull-scale Phase 1 construction, the Contractor will verify capacity of the existing power line to confirm it can meet the demand of the expected power equipment.

Specification Section 01515 (see Appendix K) – Temporary Distribution Line contains the specific requirements for the temporary power lines, references to standards, codes, best practices and industry specific requirements. The specification shall form the technical basis for the design, material procurement and construction of the temporary power lines.

The selected Contractor is responsible for coordination, design and installation of the temporary electrical distribution system at the Sitesite. System changes needed to accommodate Contractor's remediation work will be performed by the Contractor to meet the Contractor's schedule and the project's power equipment needs.

AA4.2 Submersible Dewatering Pump Controls

Sheet 11-1 depicts the existing power lines at the Site and the existing pipelines and their functions. The existing infrastructure (power, pipelines, pumps, and controls) should be used by the Contractor initially to effectively dewater the Site. However, as earthworks progresses, new or repurposed power lines, pipelines, pumps, and controls will be needed to continue effective dewatering efforts. The influent pipes during RA construction will be temporary and relocated as necessary (see Appendix J). Site topography, the location of equalization ponds, the dewatering volume, and the depth of wells/sumps also will be in constant flux during construction, which may affect the head, flow, and/or required controls for the submersible

dewatering pumps. These changing conditions mean intermediate~~intermediation~~ pumps and controls design will be necessary as field conditions change. These are the sole responsibility of the Contractor.

The Contractor will be responsible for conveying water to the appropriate locations and maintaining the approved water levels in all locations throughout all phases of construction. The Contractor can use the existing pumping and control equipment. However, the Contractor is responsible for maintenance, modification, and/or replacement of the pumping equipment to meet evolving project needs throughout each phase of construction.

In an effort to assist the Contractor with this design and operation responsibility, the table in Sheet 11-2 is provided~~was developed~~ to identify:

- Pumps with pump numbers (note: only permanently installed pumps receive pump numbers).
- Existing pumps, pumps that will be installed during construction, and whether the pumps~~they~~ are temporary~~,~~ or permanent. For example~~Note that~~ the current dewatering pumps~~pump~~ in Pits~~Pit~~ 3 and 4 are~~is~~ designated "temporary"~~,~~ because they~~it~~ will be removed after Pits~~Pit~~ 3 and 4 are~~is~~ dewatered. These pumps~~This pump~~ will be replaced by ~~the Pit 3~~ underdrain well pumps that ~~wells, which~~ are designated as the "permanent" dewatering well pumps~~wells~~ in these locations~~this location~~.
- Changes anticipated during construction that may require a temporary pump be upgraded and reinstalled (e.g., the specified pump would not be able to handle the conditions experienced in every construction phase).
- Where each pump conveys water (see Description column).
- Estimated capacity (gpm), total design head, and HP for each pump.
- Motor drive, voltage, and phase for each pump.
- The estimated construction phase(s) when each pump will be operational (i.e., Phases 1, 2, 3, and beyond).
- The type of water level control required and the control level/range.
- Instrumentation requirements for each project phase.
- Miscellaneous notes.

In addition to Sheet 11-2, process and instrumentation diagrams (P&IDs) were developed for each major phase of the project ~~(~~existing structures ~~/start of Phase 1~~ (Sheet 11-4), start of Phase 1 after Early Works~~2~~ (Sheet 11-5), start of Phase 2 (Sheet 11-6), start of Phase 3 (Sheet 11-7),~~6), and~~ end of Phase 3 (Sheet 11-8), and the end of the remedial action (following removal of the West Pond - Sheet 11-9~~construction (Sheet 11-7~~). These P&IDs specify pump power and control information (e.g., level controller type and location, flowmeter locations, etc.) to ensure the Contractor understands~~understand~~ the dewatering pump control objectives for each phase of construction. However, it should be noted that beyond Phase 1 construction there are a number of variables that could change the P&IDs for necessary pump power and control information that cannot be anticipated. If this occurs, it will be the responsibility of the Contractor and/or Newmont to revise these P&IDs.

~~A total of 10 new pumps will become permanent pumps at the end of RA construction activities.~~ Pump control panels will move multiple times during the RA activities and therefore have been designed on skids. The permanent pump control panel design affixes the mobile, skid-mounted control panel to a concrete slab after the permanent location is ready. This approach minimizes construction materials, instrumentation, and waste generation.

AA5.0 GREEN AND SUSTAINABLE REMEDIATION CONSIDERATIONS

Below are green and sustainable remediation (GSR) considerations for Appendix AA – Temporary Power Distribution and Submersible Dewatering Pump Controls. GSR considerations were evaluated for: (1) Construction Materials (characteristics and manufacturing considerations), (2) Construction Methods, and (3) Low Impact/Sustainability measures undertaken during construction.

AA5.1 Construction Material Considerations

The Contractor will be able to re-use the temporary power distribution poles in different locations, assuming they meet the requirements of the specifications. This approach minimizes construction materials and waste generation.

~~A total of 10 new pumps will become permanent pumps at the end of RA activities.~~ The pump control panels during the RA activities will move multiple times and have been designed on skids, which will be permanently attached to a concrete slab after RA activities are complete. This approach minimizes construction materials, instrumentation, and waste generation.

AA5.2 Construction Methods

Project-wide GSR recommendations in Specification 01585 – Green and Sustainable Practices pertaining to the Temporary Power Distribution and the Submersible Dewatering Pump Controls will be followed (refer to BODR Section 4.5).

AA5.3 Low Impact Development/Sustainability

Allowing the Contractor to utilize the existing power, pumps, and control infrastructure, optimize the temporary power alignment, adjust the pump size for each operational scenario, and easily re-locate pump control panels throughout each construction phase will minimize Site disruption while maximizing the use of existing infrastructure.

The temporary power line performance specification directs the Contractor to use the temporary power line in lieu of generators wherever feasible, which reduces greenhouse gas emissions and diesel fuel usage at the Site during RA activities.

Attachment AA-1

Power Line Design Criteria