Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Supplemental Environmental Assessment

Appendix B - Horizontal Directional Drilling Inadvertent Release Plan

HDD Inadvertent Release Plan

R-1930 L-186 MP 19.16 - 19.3 Replace Pipe

San Joaquin River HDD Crossing

Fresno and Madera Counties, California

September 17, 2024

HDD Execution Plan for Crossings

Contents

3 ENVIRONMENTAL MANAGEMENT

3.1 Planning

Brotherton Pipeline will adhere to all acts, regulations, Codes of Practice and best management practices that will guide the HDD process to ensure that there are no adverse environmental impacts as a result of the water crossings. The HDD management plan has been developed to avoid any harmful alteration, disruption, or destruction of fish and fish habitat due to drilling fluids and additives entering a water body. The following mitigation measures will be implemented during the HDD crossing.

General

- The HDD contractor will comply with the plan prepared for the works, except where measures must be taken to deal with an emergency.

Deleterious Materials

The prime contractor will:

- Be responsible for managing any dewatering procedures;
- Ensure that effective sediment and erosion control measures are in place along the HDD work-space access route, right-of-way and appurtenances and that they are functioning properly and are maintained and upgraded as required to prevent sediment from entering fish habitat.
- Limit use of hazardous materials.
- SDS for fuel, lubricants, and mud products will be onsite.

Equipment:

- All HDD equipment arriving on location is free from engine oil, hydraulic oil, fuel, and coolant leaks; equipment shall be checked daily to prevent leaks of fuels, lubricants or other liquids.
- All HDD equipment arriving on location is free from dirt, mud, vegetative debris, and other substances that may impact the water quality or the fish or fish habitat values of the water or land productivity; Hazardous or toxic materials that could be deleterious to aquatic life shall be contained in watertight containers or stored in upland locations with proper BMPs.
- All equipment is maintained and serviced at least 100 feet from a water body. If it is not possible to conduct such activities greater than 100 feet from the watercourse, these activities will occur within a containment area that is capable of preventing the accidental release of a deleterious substance from entering a water body or contamination of soils or vegetation;
- Restrict all equipment to the cleared Right-of Way and work space;
- All portable equipment using fuels, hydrocarbon lubricants, coolants such as electrical generators and pumps used off of the bermed entry or exit work pad will be positioned inside of a sandbag berm (or equivalent) lined with leak free polyethylene or other containment structure that serves to prevent deleterious substances such as fuel from entering the soil or aquatic environment or contamination of soils or vegetation;
- All fuels, lubricants, coolant, and other substances are contained, controlled, and handled according to Occupational Health Safety regulations and Brotherton Pipeline's safety policy and procedures,

Work Areas

- Drilling fluid mud and excess cutting material from construction activities will be stockpiled in containers\bins awaiting initial testing and characterization prior to being hauled off to an approved dump site. The containers\bins will be stockpiled in permitted work areas only.

Aquatic Resources

- Ensure generators and pumps used for water intake have secondary containment, when stationed, operated or refueled within 100 feet of a watercourse.

Waste Management

- The composition of the drilling fluid will be limited to fresh water and high yield bentonite conforming to or exceeding American Petroleum Institute specifications. Other additives or substitutions will be submitted for approval before being used in the drilling fluid.
- An SDS sheet is maintained on the work location for all drilling fluid additives.

3.2 Monitoring

- The HDD contractor will monitor, by visual and electronic means:
    - The return flow of drilling fluid from the borehole. A reduction in return flow shall be taken as indicating a possible seepage of drilling fluid.
    - The annular and/or standpipe pressure. An unplanned reduction in pressure shall be taken as indicating a possible seepage of drilling fluid.
    - The tank and pit volumes.

Any unplanned losses or gains will be reported, and increased diligence of upland and in-stream monitoring will be conducted.

- The HDD contractor will inspect all HDD equipment once every 12 hour shift to prevent the deposition of hydrocarbons onto the ground, or into a water body.
- Water Quality Monitoring is not part of Brotherton's scope of work.

3.3 Response

- The Rig Manager is the on-site authority for the HDD contractor. The Rig Manager has the authority to direct the rig crew, and the materials and equipment towards the protection of the environment.

3.4 Directional Drill Mud Release Contingency Plan

Objectives

The contingency plan outlined below has been developed and will be employed to meet the following objectives:

- To ensure Contractor has specific measures in place in the event of a inadvertent mud release and that potential impacts are minimized; and

- To ensure corrective action processes are in place to properly manage inadvertent releases of drilling mud.

The Rig Manager is responsible for implementing and maintaining all mitigation measures unless otherwise specified.

Specific Measures

Cleanup Plan

1. Develop a cleanup plan, before drilling. The plan will be prepared with the drill contractor in consultation with Owners inspection staff. Acquire the appropriate approvals to access the release area if off right-of-way and for mud pump-off.

2. Ensure that supervisory personnel are aware of the contingency plan and cleanup plan before commencement of drilling activity.

Surface Casing

3. Install surface casing at the entry point to a depth that extends beyond the coarsest material, if warranted.

4. Install surface casing at the exit point, after completion of the pilot hole if coarse textured near-surface deposits could interfere with drilling mud circulation.

Mud Composition

5. The composition of drilling fluid will be limited to fresh water and high yield bentonite conforming to or exceeding American Petroleum Institute specifications. Other additives or substitutes will require Owner approval before being used in the drilling fluid.

Drilling Sumps

6. Construct subsoil berm(s) or sump(s) down slope from the entry point and proposed exit point with a capacity adequate to capture anticipated volumes of drilling mud that could be released during pullback and other drilling operations.

Contingency Plan Equipment and Supplies

7. Certain equipment will be required onsite in sufficient quantities during drilling operations to contain any inadvertent drilling mud releases. This equipment and supplies may include:

    - (25) sandbags;
    - (100') filter cloth (e.g., silt fence);
    - (10) t-bar posts;
    - (50')straw waddles;
    - (6) shovels; (4) SqueeGees
    - (1) 55 Gallon Barrel;
    - (1 - 100' x 10' Roll) 6 mil polyethylene or equivalent; and
    - (1) 3" trash pump c/w sufficient lengths of leak free hose and suction heads.

    All of the HDD equipment on site is available to for use with emergency containment of seepage of drilling fluid, and will be directed by the Rig Manager

Manpower

8. All of the HDD contractor manpower are available to effect an emergency containment of seepage of drilling fluid, and will be directed by the Rig Manager.

Monitoring

9. Supervisory personnel will be onsite during drilling, reaming and pullback operations to ensure that contingency plan measures will be implemented immediately and effectively.

10. Monitor and record the amount of fluid return to the mud tank/pit and the amount of makeup drilling fluid required in the mixing tanks during drilling of the pilot hole and reaming.

Water Quality Monitoring (by others)

11. Ensure the water quality sampling program is in place before drilling and includes the following information:

    - Sample locations (both an upstream control site as well as appropriate downstream sites);
    - Frequency of sampling; and
    - Sampling procedures.

12. Increase the sampling frequency if monitoring of drilling mud returns indicate that a release may have occurred.

Response

13. Where seepage of drilling fluid into a water body or riparian area is detected as possibly occurring, all drilling operations must stop. Rig Manager will initiate emergency response plan if seepage of drilling fluid into a water body or riparian area is confirmed.

14. The observation of a reduction in flow of drilling fluid will constitute a detection of a possible occurrence of seepage, and thus, if a reduction in the return flow of drilling fluid should occur, the Rig Manager will;

    - Stop the advancement of the drilling assembly, pull the drive carriage to the top of the derrick, and shut off the drilling fluid pumps
    - Conduct a survey of the ground surface and water body for evidence of seepage of drilling fluid to surface
    - Notify the Owners Representative
    - Assemble measurement data such as annular and/or standpipe pressure, forward thrust pressure, and observations such as the behavior of the return flow. Evaluate the measurement data and observations with the Owners Representative.
    - Assist the Owners representative in developing a Drill Continuance Plan.

Seepage

15. If seepage of drilling fluid to surface does occur, the Rig Manager will:

    - Stop all drilling operations.
    - Contain the seepage by erecting a sandbag and polyethylene berm (or other fit- for-purpose material).
    - Notify the Owners Representative.
    - Develop and implement a recovery and clean up plan with the Owners Representative.
    - Assemble measurement data such as annular and/or standpipe pressure, forward thrust pressure, and observations such as the behavior of the return flow.
    - Evaluate the measurement data and observations with the Owner Representative.

- Assist the Owners Representative in developing a Continuance Plan.
- Document the incident according to company procedures.

Pilot Hole Deviation

16. If the pilot bore encounters conditions that interfere with steering accuracy, then the Rig Manager and Owners representative will need to take the appropriate action to complete the crossing. These actions could include:

    - Accepting the new drill path; and/or
    - Adjusting the depth of the borehole path so the drill can avoid the problematic stratum; or
    - Pulling out, moving over and drilling a new pilot hole

Loss of Circulation

17. If loss of circulation is encountered during the HDD, then the Rig Manager and Owners representative will need to assess the extent of fluid loss, determine its likely cause and take the best remedial action. These actions may include:

    - Determining the fluid loss acceptable and continuing to drill/ream/pull; or
    - Stopping the operation, re-establishing circulation and restarting the operation; or
    - Abandoning the hole, moving over, and boring a new crossing path

Given that there are many factors to consider in determining if the HDD fails, a full evaluation of all relevant data will be made and all reasonable options will be considered prior to seeking approval to use the contingency plan.

Waste Management

18. The Contractor and the Rig Manager will put in place the following measures in place to maintain the cleanliness of the work site.

    - Store deleterious substances used in the operation and maintenance of equipment in approved containers, and store containers in a location and in a manner that protects them from being punctured, crushed and leaked into the watercourse.
    - Provide segregated waste disposal containers for all general waste, and dispose of such waste.
    - Provide sanitary facilities for crew.
    - Backfill and stabilize any pits excavated for anchoring or containment.
    - Dispose of all waste drilling fluid and drilled solids according to and in conformance with regulatory requirements.

Hole Abandonment

19. *If the pilot\reamed hole must be abandoned, below are the steps necessary to be completed prior to starting a new bore.*

    - Shut down horizontal directional drilling operations and leave the drill stem in the failed hole.

- Contact a grouting specialist and produce an approved downhole grout that can be pumped through the drill stem.
- Once the grouting material is approved by the owner, the grout will be pumped downhole while the drilling stem is removed back to the entry pit.
- After the entire drill stem is removed and the grout has had sufficient time to cure, drilling operations will resume with a new entry bore location.

Groundwater Intrusion Management -

- Over-excavate entry pit to dimensions of 8'x 8' by 5' deep pit
- Collect groundwater flowing into bore pit and pump out into 20,000 gallon frac tank using 6" pump. The groundwater will be sampled and characterized by the Project EFS prior to haul off.
- Hauled off and dispose of excess groundwater at approved dump site with vacuum trucks.

Drilling Fluid Flush Management Plan -

- Over-excavate entry pit to dimensions of 8'x 8' by 5' deep pit
- Collect drilling fluid flowing into bore pit and pump out into 20,000 gallon frac tank using 6" pump.
- Hauled off and dispose of excess groundwater at approved dump site with vacuum trucks.