

5 INADVERTENT RETURNS CONTINGENCY PLAN

This Inadvertent Returns (IR) Contingency Plan provides specific procedures to address any potential inadvertent return of drilling fluids occurring during the HDD crossing of the Napa River in Napa County, California during construction of the PG&E L-021A MP 12.05-16.16 ILI Upgrade pipeline replacement project (L-021A).

The following plan has been prepared to outline measures to; minimize the potential for inadvertent returns (IRs), provide early detection of IRs, and provide containment and clean up IRs. The contractor is required to notify the PG&E designated Environmental Field Specialist (EFS) and any required regulatory agencies of an IR. Unless otherwise specified, PG&E will implement the following plan with the contractor and the PG&E Pipeline Inspection team.

Key elements of this plan include:

1. A List of Preventative Measures (Section 5.1)
2. Monitoring and Inadvertent Returns Response and Corrective Actions (Section 5.2)
3. Response Supplies (Section 5.3)
4. Notification Procedures (Section 5.4)
5. Abandonment (Section 5.5)

5.1 PREVENTATIVE MEASURES

5.1.1 HDD Contractor Requirements

5.1.1.1 Utility Clearance

The HDD contractor shall be responsible for contacting Underground Service Alert (USA) a minimum of three working days prior to the commencement of drilling operations to identify any underground utility conflicts. Any potential conflicts should be potholed, as necessary, prior to the start of drilling activities. The contractor should maintain an appropriate clearance between the outside edge of the existing utility and the outside edge of the largest diameter reamer or other boring equipment. Any pre-installation inspection work required by PG&E must be completed prior to commencing drilling operations.

5.1.1.2 Inadvertent Returns Monitoring and Response

The HDD contractor shall have a drilling foreman on-site at all times while HDD operations are underway. All on-site employees shall be prepared to respond to any IRs that may occur during drilling operations and be capable of performing their assigned tasks for containment and cleanup of IRs.

5.1.1.3 Drilling Fluid

The HDD contractor shall select appropriate drilling fluids for the anticipated subsurface conditions and have the SDS for each drilling fluid additive on-site. The contractor shall submit a list of additives and the SDS prior to commencement of drilling operations. Only drilling fluid additives that have been pre-approved by PG&E may be used for drilling.

5.1.1.4 Maintenance of Circulation in the Borehole

The HDD contractor shall select proper tools and equipment to maintain proper annular space and allow for circulation of drilling fluids. The contractor will be responsible for collecting samples of their drilling fluid for testing in order to document the drilling fluid properties before they begin drilling or reaming and each time they add newly mixed mud to the hole.

During HDD drilling operations, the rate of advancement should be controlled to allow for cuttings to be sufficiently circulated out of the borehole. The most effective way to minimize IRs during HDD drilling operations is to maintain fluid circulation to the extent practical. The HDD contractor is responsible for maintaining fluid circulation and verifying the borehole is clean by utilizing industry best practices.

5.1.1.5 Borehole Pressures

A proper drilling fluid pressure should be maintained throughout the entire length of the HDD and should be reduced as much as practical near the exit point. A pressure sensing sub several feet behind the drill bit should be used to monitor drilling fluid pressures in the annular space to compare against the maximum predicted allowable pressures to help avoid IRs. The pressure sub provides real-time monitoring of annular space pressures and can detect spiking annular pressures that result from a blocked borehole. Furthermore, the pressure data allows the driller to make modifications to the drilling methodology as necessary to avoid an IR.

5.1.2 PG&E Environmental Requirements

Prior to commencement of drilling operations PG&E will:

- Clearly show the construction limits on the design drawings
- Delineate wetlands if necessary, within and adjacent to the construction area as shown on the design drawings
- Verify that all required environmental permits are in place

5.2 MONITORING AND INADVERTENT RETURNS RESPONSE AND CORRECTIVE ACTIONS

5.2.1 Inadvertent Return Monitoring

During drilling operations, information including drilling fluid pressures, drilling fluid pumping rates, alignment, geologic formation, depth, inclination, etc. will be monitored by the Contractor so that they are maintained according to the design plan.

To identify whether an IR has occurred, HDD activities will be actively monitored by the HDD project team, including: the contractor, the pipeline/project inspection team, the Environmental Inspector, and the project EFS (as required). Monitoring procedures will include the following:

- Visual surface inspection along and in the vicinity of the drill path.
- Visual inspection of the entry and receiving pits (continuously).
- Monitoring of drilling fluid pressures and return flows.
- Visual inspection along the drill path upon completion of HDD drilling operations and pipe pullback.
- Frequent inspection along areas of identified higher risk, i.e. the Napa River, areas upgradient to the river, and previous exploration locations.

5.2.2 Inadvertent Return Response

The HDD contractor shall immediately follow the notification procedures in the event of any IR to the ground surface or into the river. If an IR is observed, the HDD contractor will take reasonable measures to eliminate, reduce, or control the release. The actions to be taken will depend on the location of release, site specific conditions, and the volume of the release. If a release occurs in an upland area, the HDD contractor will immediately take any or all of the following actions:

- Constructing a small pit or sandbag coffer around the release point, installing a section of silt-fence or compost filter sock to trap as much sediment as possible, and placing a pump hose in the pit to pump the drilling fluid back to the bore site or to a tanker.
- Reducing drilling fluid pressure
- Thickening drilling fluid mixture and/or adding pre-approved loss circulation agent to the fluid mixture
- Down hole cementing
- Relief Well installation
- If IR cannot be controlled by the above, halt drilling work and stop pumping mud

The HDD contractor in consultation with PG&E representatives will determine which methods are most appropriate to eliminate, reduce, or control the release. Recovered drilling fluid will be recycled and reused to the extent that is practical. Waste drilling fluid will be disposed of in an approved solid waste landfill in accordance with PG&E standards.

If an IR occurs into the river, it will be the responsibility of the HDD contractor to contain and collect drilling fluid, and ultimately restore the disturbed area, as practical. Drilling operations will be temporarily suspended to allow contractor to set up a containment and collection system such as a sediment/turbidity barrier.

If an IR occurs in close proximity to where there is likelihood of the drilling fluid migrating into the river, then drilling operations will cease until HDD personnel and inspection team have examined the site and evaluate the threat to the drainage or waterbody. The EFS will make all appropriate agency and owner notifications.

The response action will be on a case-by-case basis. A plan for avoiding additional impacts, which may include a pump or flume bypass with secondary containment, in addition to all of the action items listed above will be implemented. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing further impacts to the drainage or waterbody. The release site should continue to be closely monitored for any additional further IR activity until the HDD work in the area is completed.

One exception to ceasing drilling operations until containment is developed would be a release of drilling fluids during the pipe pullback process and if ceasing operations would pose a risk of the pipe to become stuck. It should be recognized that in some instances, restoration of circulation may not be practical or possible and that environmental impact will be minimized by completing construction as soon as possible.

Prior to the start of the HDD process, the project team including the contractor, PG&E Pipeline Inspection team, and the EFS will review this contingency plan, their roles and responsibilities, applicable permit conditions, any known sensitive environmental areas, and reporting requirements.

5.3 RESPONSE SUPPLIES

Response supplies will be maintained on-site by the contractor and verified by the PG&E Representative to ensure that appropriate response supplies are present and serviceable. It is anticipated that these supplies may include, but are not limited to:

- Sandbags
- Filter cloth (e.g. silt fence)
- T-bar posts
- Straw wattles
- Hand tools such as brooms, rakes, shovels, etc.
- 55-Gallon Barrel
- Roll of 6-mil polyethylene plastic or equivalent
- Trash pump w/ sufficient lengths of leak free hose and suction heads
- Sediment/Turbidity barrier

The contractor is responsible to have additional resources available for deployment to the site as necessary to address an IR such as vacuum trucks, frac tanks, etc.

5.4 NOTIFICATION PROCEDURES

If an IR is discovered, action steps will be taken by the contractor to contain the IR as described above in the Section 5.2.2, Inadvertent Return Response. Procedures for notification to PG&E personnel and regulatory agencies are detailed in this section.

The HDD contractor shall immediately notify a member of the project inspection team of any sudden losses in returns or any IRs to the surface. If the HDD contractor is not able to immediately speak directly with the Pipeline Inspector:

- For loss of circulation, the HDD contractor will work with the inspection team to restore circulation and notify the project manager
- For IRs the project inspection team will notify PG&E personnel.

The HDD contractor will notify PG&E representatives for an unanticipated IR. PG&E representatives will assess the location, the corrective actions that are planned, and whether PG&E will notify any required regulatory agencies if required. The contact information for the regulatory agencies is provided in the table on the following page.

Should an IR occur, the response and remediation efforts will be documented by the contractor, and Project Inspection team in the field notes. The field notes will provide details on at least the following:

- The location, date, and time of IR
- The date and time PG&E was notified
- Drilling conditions at the time of the IR
- Personnel and response efforts
- Quantities of drilling fluids/slurry collected
- Drilling fluid/slurry disposal records.

Regulatory Contact Information
(to be contacted by the PG&E Environmental Field Specialist)

Agency	Contact
US Army Corps of Engineers – San Francisco District North Branch	415-503-6631
California Office of Emergency Services	800-852-7550
National Response Center	800-424-8802
State Lands Commission	562-590-5201
California Department of Fish and Wildlife	916-375-8580
Regional Water Quality Control Board	510-622-2300
Napa County Environmental Health Services	707-253-4417
Napa County Sheriff’s Department	707-253-4509

Additional emergency contact information such as fire and medical, if needed, is provided in the contractors site-specific Health and Safety Plan, which will be available on-site at all times.

5.5 ABANDONMENT

In the event the HDD hole is to be abandoned, the hole will be abandoned by pumping an approved bentonite-grout mixture into the abandoned hole as the drill assembly is extracted.

5.5.1 Alternative Evaluation

Before any determination that the drill entry or exit location should be relocated off of the existing approved workspace or the pursuit of other alternatives for completing the crossing, an attempt will be made to identify and assess the reason for the failure of the HDD and the probability of success of the alternatives. Potential changes to HDD drilling methodologies may include but are not limited to one of the following alternatives or a combination of the following alternatives:

- Changing drill procedures (bit selection, mud viscosity/pressure/flow velocity, bit rotation/velocity, etc.)
- Changing of the drill profile (depth of hole)
- Horizontal relocation of the drill hole