

**EXHIBIT D-2**

**ISCR Facility Operations Plan  
(Monitoring and Response Requirements)**

Exhibit D-2. ISCR Facility Operations Plan (Monitoring and Response Requirements)  
July 2019

		Component	Monitoring Device	Condition	Possible Cause*	Response	Follow-up Action
System Monitoring and Control Devices	Injection System	Injection Manifold and Pipeline	Pressure Gage or Transducer with upper and lower set points	Pressure exceeds upper setting	Improper pump setting, clogged screens, reduced formation permeability, obstructed well or equipment.	Alarm in control room, stop flow at injection manifold.	Restart injection at lower flow rates.
				Pressure below lower setting	Line break, casing or screen breach.	Alarm in control room, stop flow at injection manifold.	Repair system before restarting flow to injection manifold.
		Flow Meter		Flow rate too high	Improper pump setting, line break, injection well short circuit.	Alarm in control room, stop or reduce flow at injection manifold.	Inspect/repair injection system, increase flow rates in adjoining recovery manifolds as necessary.
				Flow rate too low	Improper pump setting, clogged screens, reduced formation permeability, obstructed well or equipment.	Alarm in control room, reduce flow rates in adjoining recovery manifolds.	Inspect/repair system, adjust injection flow rate as necessary.
		Totalizing Flow Meter		Daily total flow: Total in > total out	Loss of hydraulic control.	Reduce injection flow rate or increase recovery flow rate.	Follow Part II.G of UIC Permit and related reporting and record-keeping requirements.
		Injection Well Head	Flow Meter	No flow	Power loss, line break, instrument failure.	Reduce recovery rate in adjacent wells.	Repair system, adjust flow rates as necessary.
				Flow rate too high	Improper pump setting, injection well short circuit, damaged well casing or equipment.	Reduce injection flow rate as necessary.	Inspect/repair injection system.
				Flow rate too low	Improper pump setting, reduced formation permeability, obstructed well or equipment.	Reduce flow rates in adjoining recovery manifolds.	Inspect/repair system, adjust injection flow rate as necessary.
			Transducer	Pressure exceeds upper limit	Improper pump setting, clogged screens, reduced formation permeability, obstructed well or equipment.	Alarm in control room, stop flow at injection manifold.	Restart injection at lower flow rates.
				Pressure below lower limit	Line break, casing or screen breach.	Alarm in control room, stop flow at injection manifold.	Repair system before restarting flow to injection manifold.
		Injection Well Annular Space	Transducer	Fluid level too high	Loss of packer pressure, injection tubing failure, formation bypass to upper screened zone.	Inspect packer pressure, pressure test packer lines, inspect injection tubing, inspect fluid level conditions at other injection wells.	Repair or replace packer or inflation equipment if necessary, replace damaged injection tubing, monitor fluid level conditions.
	Recovery System	Recovery Manifold and Pipeline	Flow Meter	Flow rate too high	Improper pump setting.	Reduce recovery manifold flow rates as necessary.	Inspect/repair system, reduce recovery flow rate as necessary.
				Flow rate too low	Improper pump setting, reduced formation permeability, obstructed well or equipment.	Increase pump rate.	Inspect/repair system, reduce injection flow rate in adjacent manifolds as necessary.
			Totalizing Flow Meter	Daily total flow: Total in > total out	Loss of hydraulic control.	Reduce injection flow rate or increase recovery flow rate as necessary.	Follow Part II.G of UIC Permit and related reporting and record-keeping requirements.
		Recovery Well Head	Flow Meter	No flow	Power loss, instrument failure.	Alarm in control room, stop injection in adjoining injection wells.	Repair system before restarting injection.
			Pressure Transducer (in selected wells only)	Fluid level too high	Improper pump setting, short circuit in adjacent injection wells.	Alarm in control room, adjust pump setting, inspect well, reduce injection in adjoining wells as necessary.	Inspect/repair recovery well and adjacent injection wells as necessary.
				Fluid level too low	Improper pump setting, clogged screen, reduced formation permeability.	Alarm in control room, automatic shut-off of pump.	Evaluate formation, restart well at lower flow rate if necessary.
		Observation Well	Daily sample for TDS analysis	TDS equal to or greater than injected fluid	Localized loss of hydraulic control	Stop injection at the nearest injection well(s). Increase solution extraction from the recovery wells surrounding the injection wells that have been idled to increase or re-establish the inward hydraulic gradient. Increase solution extraction from the 5-spots adjacent to the idled wells.	Monitor water levels in the recovery, observation, and perimeter wells to confirm that the inward hydraulic gradient has been re-established. Monitor water quality daily at the observation wells in which solution was detected.

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		Component	Monitoring Device	Condition	Possible Cause*	Response	Follow-up Action
System Monitoring and Control Devices (continued)	ISCR Area Tanks	Raffinate/Lixiviant Tanks	Level Indicators	Fluid level too high	If in production mode, insufficient flow to injection wells or insufficient raffinate bleed to water impoundment. If in recirculation mode, too much flow from PLS tanks.	Alarm in control room, automatic shut-off of pumps at raffinate tanks.	Inspect/repair injection system, adjust pump settings at raffinate tank.
				Fluid level too low	If in production mode, flow too high to injection manifolds or too much raffinate bleed to water impoundment. If in recirculation mode, insufficient flow from PLS tanks.	Alarm in control room, automatic shut-off of injection pumps.	Inspect/repair injection/raffinate system, adjust pumps at raffinate tank.
		PLS Tanks	Level Indicators	Fluid level too high	Recovery rate too high, or flow to SX/EW too low if in production mode, or flow to raffinate tank too low if in recirculation mode.	Alarm in control room, automatic shut-off of recovery and injection wells.	Inspect/repair injection system, adjust pumps to PLS pond and injection manifolds.
				Fluid level too low	Recovery rate too low or flow to SX/EW too high if in production mode, or flow to raffinate pond too high if in recirculation mode.	Alarm in control room, automatic shut-off of injection wells.	Inspect/repair injection/recovery system; inspect/repair lines to raffinate tanks.
	Beneficiation Area Ponds	Raffinate/Lixiviant Pond	Level Indicators	Fluid level too high	If in production mode, insufficient flow to injection wells or insufficient raffinate bleed to water impoundment. If in recirculation mode, too much flow from PLS pond.	Alarm in control room, automatic shut-off of pumps at raffinate tanks.	Inspect/repair injection system, adjust pump settings at raffinate pond.
				Fluid level too low	If in production mode, flow too high to injection manifolds or too much raffinate bleed to water impoundment. If in recirculation mode, insufficient flow from PLS pond.	Alarm in control room, automatic shut-off of injection pumps.	Inspect/repair injection/raffinate system, adjust pumps at raffinate pond.
		PLS Pond	Level Indicators	Fluid level too high	Recovery rate too high, or flow to SX/EW too low if in production mode, or flow to raffinate pond too low if in recirculation mode.	Alarm in control room, automatic shut-off of recovery and injection wells.	Inspect/repair injection system, adjust pumps to PLS pond and injection manifolds.
				Fluid level too low	Recovery rate too low or flow to SX/EW too high if in production mode, or flow to raffinate pond too high if in recirculation mode.	Alarm in control room, automatic shut-off of injection wells.	Inspect/repair injection/recovery system; inspect/repair lines to raffinate pond.
	Runoff Pond	Sumps	Liquid Detectors	Liquid present	Precipitation or leak.	Alarm in control room. If not raining, arm immediate shut-off of associated pumps.	Assess liquid; return liquid to plant or water impoundment; evaluate and repair pipeline if needed.
		Sump	Liquid Level Indicator	Liquid accumulating in sump	Precipitation, leak, spill, wash down.	Alarm in control room; determine nature of liquid. Pump to PLS, raffinate ponds, or neutralizing unit/water impoundment depending on volume and source of liquid.	Inspect sump to confirm that accumulating liquids are being removed.
External Monitoring	Water Impoundments	Leak Collection and Removal System (LCRS)	Conductivity probe	Presence of liquid in sump above pump-down level	Leak in upper (primary) liner.	Measure and record volume of liquid removed from LCRS sump, determine if ALR or RLL is exceeded.	If ALR or RLL is exceeded, follow APP contingency plan and related reporting and record-keeping requirements.
		Paired Recovery/Observation Wells	Pressure Transducer	Average daily head in recovery well > average daily head in observation well	Loss of hydraulic control.	Increase recovery flow rate or decrease injection flow rate as necessary.	Follow Part II.G of UIC Permit and related reporting and record-keeping requirements.
			Pressure Transducer	Localized daily head in recovery well > average daily head in observation well	Localized loss of hydraulic control.	Stop injection at the nearest injection well(s). Increase solution extraction from the recovery wells surrounding the injection wells that have been idled to increase or re-establish the inward hydraulic gradient. Increase solution extraction from the 5-spots adjacent to the idled wells.	Monitor water levels in the recovery, observation, and perimeter wells to confirm that the inward hydraulic gradient has been re-established. Monitor water quality daily at the observation wells in which solution was detected.

\*Faulty monitoring devices will be evaluated as a possible cause of each listed condition.