

Please complete the following questions to view your recommended optimization themes and relevant document sections.
Note, results will not generate unless all questions have been answered.

Detailed Optimization Questionnaire		
#	Questions	Responses
1	Are all identified decision-making regulators, potentially responsible parties, and stakeholders involved with the project?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
2	Is there regulator, potentially responsible parties, and stakeholder consensus on the CSM?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
3	Do formal RAOs exist? If so, are they realistic and clearly defined and interpreted the same way by all regulators, potentially responsible parties, and stakeholders?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
4	Are regulators, potentially responsible parties, and stakeholders adequately informed regarding the pump and treat system, including the following areas: - Performance and projected timeframes for achieving RAOs - Optimization actions planned/implemented - Transitions to alternative remedies or MNA (if applicable) - Regulatory considerations, approvals, violations - Relevant operational information including water use, reuse, renewable energy use, air quality monitoring, others	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
5	Is there regulator, potentially responsible parties, and stakeholder consensus on the remedial approach?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
6	Are all regulator, potentially responsible parties, and stakeholder concerns addressed?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
7	If the answer to questions 5 or 6 of this section is "No", has the team developed a strategy for regulatory and stakeholder approval and justification of a system transition to another remedial action (i.e. passive/in-situ treatment), or MNA?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
8	Are the aquifer heterogeneity challenges at the site well understood?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
9	Has the plume been sufficiently delineated via a monitoring well network or High Resolution Site Characterization (HRSC) technologies to address aquifer heterogeneity?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
10	Have alternatives to pump and treat already been evaluated and found to be less viable and/or efficient towards achieving RAOs?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
11	If a transition from pump and treat is a likely path forward, has the implementation approach including timeframe, monitoring and evaluation plan been defined?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
12	Has a flexible ROD incorporating a treatment train strategy been considered as an alternative for the site?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
13	If a transition away from pump and treat is desired or planned, has stakeholder consensus been reached on the changed, and/or have regulators approved of the transition (i.e. ESD, TI waiver, ROD amendment, or other)?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
14	Is the planned or active remediation site free from encumbrances related to a known or potential land acquisition?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
15	Is (Are) the extraction well design(s) appropriate given the current understanding of the CSM?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
16	Has the plume capture of the planned/existing extraction network been determined or improved via a capture zone analysis or similar evaluation?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
17	Are system components (pumps, pipes, tanks) right sized for planned operations (i.e. not over-designed for the system)?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain

18	If reinjection of treated water is currently incorporated into system design, is the reinjection location, depth, volume, and chemistry optimized for recirculation and removal of contaminants?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
19	Do the planned/existing injection wells/galleries have enough capacity to take the treated water?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
20	Have beneficial reuse options for treated water been incorporated into the system design?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
21	Is the efficiency of the extraction well network consistent?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
22	Are well rehabilitation methods effective?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
23	Are the influent and effluent conveyance system operating as designed without fouling/plugging, need for pipe diameter adjustments, etc?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
24	Has the current system been evaluated to determine whether one or more operational parameters could be optimized without major capital investment (i.e. pH adjustment, flow rate, chemical dosages)?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
25	Does the system currently employ energy saving components such as Variable Frequency Drive (VFD) pumps or premium efficiency motors?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
26	Are tools such as SCADA and modeling programs used effectively to control and monitor the system, and evaluate the system performance?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
27	Does the system have remote monitoring and is automation used to reduce required operator attention?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
28	Are contaminant concentrations and influent flows consistent with design parameters?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
29	Does the treatment system consistently meet the discharge requirements?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
30	If capital investment is planned, has a cost-benefit analysis been performed to understand whether life-cycle costs will be optimized by implementing the upgrades?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
31	Has the optimization program considered regulatory limitations to potential optimization actions such as water rights, water use/discharge requirements, renewable energy standards, air quality standards, and others?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
32	Have green energy opportunities been considered and/or implemented utilized to power the remediation system (solar, wind, geothermal)?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
33	Does system reporting incorporate energy usage, materials usage, waste volume, and other data that would be needed for routine energy assessments?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
34	Has an energy assessment been performed for the remedy?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
35	If a switch to alternative fuel or green energy is desired, has an evaluation on return-on-investment been completed to determine whether the investment will reduce costs over the life-cycle of operations?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
36	Has a sensitivity analysis been performed for system redundancy and resilience to weather events, power outages, and other unforeseen circumstances?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
37	Does the system (including groundwater extraction rates and extraction well screen depth intervals) address realized or projected challenges from groundwater elevation changes over time (i.e. due to climate change, drought, recirculation)?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain

38	(For Superfund Sites): For an LTRA remedy, are RAOs likely to be achieved prior to transferring the site to the State?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
39a	For LTRA sites, is the remedy operating in a manner such that the site can be transferred successfully to the State according to the schedule?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
39b	If not, are the causes known and within the region's control?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
40	Has the pump and treat system received failing grades on performance evaluation and performed optimization to address deficiencies?	<input type="radio"/> <input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
41	Are there pre-defined metrics for shutdown and transition into the next component of the remedy treatment train?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
42	Has the pump and treat operation been shutdown (possibly inadvertently by a hurricane event, for example) to assess natural attenuation and evaluate plume stability without pumping?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
43	Are contaminant concentration reduction or mass removal rates continuing to make significant progress in line with the original design intent?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
44	Is the operability and reliability of the system sufficient to avoid excessive downtime due to corrosion, fouling, poor local power supply, or other threats?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
45	Has an acceptable alternative performance objective been evaluated to determine whether remaining mass discharge (without pumping) can be naturally assimilated by MNA and remain protective of human health and the environment, and either ruled out or pursued?	<input type="radio"/> <input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
46	Have extraction or monitor well systems been reviewed for impacts (e.g. rising or declining groundwater, saline intrusion, changes in permafrost) of climate change?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain
47	Has the site been evaluated for sustainability and resiliency considerations?	<input type="radio"/> Yes or N/A <input type="radio"/> No/Uncertain