Name	Valve exercise																							
Description	unsticks valves after long period of rest																							
Date	10/3/2020																							
Notes	staggered operation to reduce current																							
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
pulse to A state	1	0.2			x						x								x					
pulse to B state	2	0.2				x						x								x				
pulse to A state	3	0.2					x								x									
pulse to B state	4	0.2						x								x								
pulse to A state	5	0.2							x								x							
pulse to B state	6	0.2								x								x						
return to rest state	7	0.2			x						x								x					
return to rest state	8	0.2					x										x							

Name	Rest state																							
Description	Rest state																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
pulse to A state	1	0.2			x		x		x		x				x			x		x				
pulse to B state	2	0.2																						
pulse to A state	3	0.2																						
pulse to B state	4	0.2																						
pulse to A state	5	0.2																						
pulse to B state	6	0.2																						
return to rest state	7	0.2																						
return to rest state	8	0.2																						

Name	Fill																							
Description	Fills the chamber prior to measure																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
seawater pump on	1																							x
set valves	2	0.2			x		x		x		x				x		x		x					
wait	3	5																						
pulse sample pump	4	10																				x		
seawater pump off	5																							

Name	Purge																							
Description	clears fluid from chamber																							
Date	10/3/2020																							
Notes	use air to purge																							
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		X			X		x			x		x		x					
pump on	2	10																			x			

Name	path zero																							
Description	zeros the gas paths																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		x			x	x					x	x			x				
air on	2																				x			
wait	3	20																						
air off	4																							

Name	cal zero																							
Description	Licor zero cal																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		x			x	x				x			x	x					
air on	2																				x			
wait	3	20																						
air off	4																							
wait	5	3																						
send Licor cal command	6																							

Name	measure air																							
Description	measures ambient air																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		x		x			x			x		x		x					
air on	2																				x			
wait	3	15																						
air off	4																							
wait	5	3																						
measure	6																							

Name	acid inj																							
Description	injects acid prior to sparging																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
valves at any state					x		x		x		x				x			x		x				
pulse acid pump	1	15																					x	

Name	measure chamber																							
Description	measures sample																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		x		x		x				x		x		x					
air on	2																				x			
wait	3	15																						
measure	4																							
air off																								

Name	std zero																							
Description	Licor standard or span cal																							
Date	10/3/2020																							
Notes																								
no x = don't care																								
			not used		sense in sel		eq or chamb sel		vent or loopback		air or loop		std gas		zero select		short zero		out sel		air	samp	acid	sea
			SV0		**SV1**		**SV2**		**SV3**		**SV4**		**SV5**		**SV6**		**SV7**		**SV8**		**P0**	**P1**	**P2**	**P3**
Description	**step no**	**time**	0A	0B	1A	1B	2A	2B	3A	3B	4A	4B	5A		6A	6B	7A	7B	8A	8B				
set valves	1	0.2			x		x		x		x				x		x		x					
cal gas	2	5											x								x			
wait	3	10																						
send Licor cal command	4																							
wait	5																							