

Pre-Chemigation Assessment

No.	Item	Action Needed or Taken	Date
Label Provisions, Handler Safety (if WPS applies), and Community Response			
LP1.	Pesticide label(s) use provisions <input type="checkbox"/> Product is registered for chemigation <input type="checkbox"/> Irrigation system being used is listed in the chemigation section <input type="checkbox"/> Crop or crop site is listed <input type="checkbox"/> Application will not exceed labeled rate, cumulative quantity restriction, or application frequency		
LP2.	Handlers (e.g., mixing, loading, applying, early re-entry) <input type="checkbox"/> Properly trained in set-up, operation, and shutdown of irrigation and injection equipment <input type="checkbox"/> Appropriately trained and properly equipped to safely use pesticides <input type="checkbox"/> Label-specified protection equipment provided (e.g., gloves, apron, eye protection, protective suites) <input type="checkbox"/> Access to pesticide label and material data safety sheet (MSDS)		
LP3.	Respirators (if required by the pesticide material) <input type="checkbox"/> Physical completed and medical clearance form on file with employer <input type="checkbox"/> Handler received training on make and model of respirator within the past year <ul style="list-style-type: none"> ▶ Don and removing ▶ Washing, care, maintenance, and storage ▶ Decontamination procedure ▶ Cartridge selection and change out schedule <input type="checkbox"/> Handler has been fit-tested within the past year, when requested, or with change in physical condition		
LP4.	Emergency eyewash <input type="checkbox"/> One-pint per person must be immediately accessible		
LP5.	Decontamination supplies <ul style="list-style-type: none"> • Refer to “Emergency Equipment and Supplies” and “Decontamination Standards for Handlers” <input type="checkbox"/> Within ¼-mile of application site <input type="checkbox"/> At mix/load site <input type="checkbox"/> At decontamination station } Sites may be collocated		
LP6.	Central Posting Board <input type="checkbox"/> WPS safety poster present and information legible <input type="checkbox"/> Emergency information about nearest emergency medical facility <input type="checkbox"/> Pesticide-specific application information (e.g., location, product name, application time & date, REI)		
LP7.	Operation, Emergency Response, and Preparedness Plan (refer to sample plan) <input type="checkbox"/> Information is current and accurate <input type="checkbox"/> Contents reviewed with employees and they are familiar with emergency response procedures <input type="checkbox"/> Plan retained at the application site or in possession of the applicator		

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Chemigation Injection Site			
CS1.	Injection site free of leaking or broken pesticide containers		
CS2.	injection site uncluttered and unobstructed by overgrown plants or plant debris		
CS3.	Measures taken to minimize off-target contamination (e.g., surface water, wellhead, roadway, homesteads) <input type="checkbox"/> Injection site and equipment suggested to be placed at least 25 feet from surface water or wellhead <input type="checkbox"/> If positioned closer than 25 feet, injection equipment (i.e., tanks, hoses, pump, injection point) placed into a secondary containment structure or onto a containment pad <input type="checkbox"/> Surface drain covers installed, nozzle deflectors in-place, nozzle arc adjusters and trip pins set, etc.		
CS4.	Measures taken so that injection site will not be contaminated (overspray, drift) with chemical-laden water <input type="checkbox"/> Equipment placed outside of treatment area <input type="checkbox"/> Disable nozzles that overspray injection site <input type="checkbox"/> Injection equipment located down gradient of water source <input type="checkbox"/> Application tank placed within a secondary containment structure <input type="checkbox"/> Injection equipment placed onto a containment pallet/collection basin or within a containment structure		
CS5.	Water does not collect or pond around the injection site or the power control panels		
CS6.	Shovels, diking or absorbent materials, PPE, and overpack drums available on-site for spill response		

Antipollution Devices			
AP1.	Backflow devices present and operate correctly <input type="checkbox"/> Irrigation mainline check valve <input type="checkbox"/> Vacuum relief valve <input type="checkbox"/> Low pressure drain <input type="checkbox"/> Inspection port <input type="checkbox"/> System interlock (i.e., pressure switch, flow meter, electric or hydraulic solenoids)		
AP2.	Irrigation mainline check valve <input type="checkbox"/> Manipulate assembly (valve and linkage) to assess linkage and seal integrity and spring tension <input type="checkbox"/> Check for worn, torn, or missing seats; misaligned linkages; or broken springs		
AP3.	Injection line check valve. <input type="checkbox"/> Cracking (opening) pressure of spring at least 10 psi ▶ Increase opening pressure 5 psi for every 10 feet that fluid level in tank is above injection point <input type="checkbox"/> Injection check valve constructed of chemically compatible and of ultraviolet (UV) stabilized material <input type="checkbox"/> Injection point is recommended to be at least 25 feet away from the water source <input type="checkbox"/> Injection point must be as far downstream from a water outtake as possible, but at least six feet		

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AP4.	Vacuum relief valve <input type="checkbox"/> Ventilation ball should be free floating ▶ The ball may become wedged or cemented into an open position after long run periods or when operated in high calcareous (i.e., calcium, carbonate, bicarbonate) water		
AP5.	Inspection port <input type="checkbox"/> The port must be located immediately upstream of the irrigation mainline check valve ▶ Only after the irrigation system has depressurized, open inspection port and inspect for leakage past the irrigation mainline check valve. If leakage is present, check for valve malfunction. ▶ Inspection ports may not be present on constantly pressurized or flooded centrifugal pump systems (i.e., hydraulic head from elevation gain to the water source)		
AP6.	Low-pressure drain <input type="checkbox"/> Drain valve should operate freely. Check for calcification or for debris. <input type="checkbox"/> Drainage is discharged away from sensitive areas		
AP7.	Irrigation system and injection apparatus interlocks <input type="checkbox"/> Pressure switch de-energizes electrical outlets on control panel with loss of irrigation system pressure <input type="checkbox"/> Flow meter de-energizes electrical outlets on control panel with decrease in irrigation water flow rate <input type="checkbox"/> Hydraulic solenoid will not energize electrical outlets until irrigation system pressure is reached <input type="checkbox"/> Direct-wired electrical outlets are color coded to distinguish from slaved (interlocked) outlets		

Injection Equipment

IE1.	Application tank <input type="checkbox"/> Sufficient volume to hold agricultural chemical(s), adjuvant(s), and carrier <input type="checkbox"/> Adequately cleaned to prevent chemical cross-contamination and avoid crop injury or contamination <input type="checkbox"/> Placement is protected from farm equipment or vehicles <input type="checkbox"/> Structurally sound: no holes, cracks, stress fractures, or breaks, especially around the site tube and tank outlet <input type="checkbox"/> ¼-turn shutoff valve attached to outlet, is properly operating, and can be fitted with a locking device <input type="checkbox"/> External site tube fitted with a spring-loaded or manual shutoff valve or attached downstream of tank ¼-turn shutoff valve <input type="checkbox"/> External site tube is clamped or secured to application tank <input type="checkbox"/> Filter screen or strainer is of appropriate mesh (usually at least a 40-mesh) and undamaged <input type="checkbox"/> Filter screen or strainer is unplugged and free of chemical residue, foreign material, or debris <input type="checkbox"/> Opaque tanks used when injecting fertilizer with chelating agents (due to photogradation) <input type="checkbox"/> Manhole cover in-place, other ports covered <input type="checkbox"/> No visible signs of leakage after tank is filled		
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IE2.	<p>Application notification information</p> <ul style="list-style-type: none"> ● Attached to application tank, posted on enclosed building, or fastened to security fence <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input type="checkbox"/> Contact name <input type="checkbox"/> Contact phone number <input type="checkbox"/> Volume of container <input type="checkbox"/> Unique identifier </div> <div style="font-size: 3em; margin-right: 10px;">}</div> <div> Minimum of two-inches in height contrasting color to background </div> </div> <ul style="list-style-type: none"> □ Pesticide label (chemigation) or list of primary ingredients (fertigation) 		
IE3.	<p>Suction line hose from tank to injection pump</p> <ul style="list-style-type: none"> □ Appropriate size □ Compatible with injected material and UV-stabilized □ Contains an in-line strainer to prevent coagulated material, precipitates, or foreign material from entering the injection pump or irrigation system □ Ideally, fluid level in application tank is higher than suction valve on injection pump □ Hose not in physical contact with abrasive materials or sharp objects □ Tubing protected from farm equipment and vehicles □ Tubing kept as short as possible to minimize the potential for mechanical damage or as a tripping or entanglement hazard 		
IE4.	<p>Pressure line hose from pump to injection point</p> <ul style="list-style-type: none"> □ Kept as short as possible to minimize the potential for mechanical damage or as a tripping or entanglement hazard □ Capable of withstanding operating pressure of irrigation system and of the injection system <ul style="list-style-type: none"> ▶ Braided or another high pressure rated material (i.e., burst strength) □ Hose not in physical contact with abrasive materials or sharp objects □ Tubing protected from farm equipment and vehicles □ Hose free of deformation (i.e., discoloration, softness, bulging), cuts, pinholes, tears, ruptures, abrasion, or wear points. Be aware of products that can weaken hose integrity. 		
IE5.	<p>Agitation System</p> <ul style="list-style-type: none"> □ If needed, agitation system to keep the chemical in solution or suspension. <ul style="list-style-type: none"> ▶ As a general rule, dilution ratios greater than 1:200 (1 part chemical to 199 parts water) require agitation during the injection application. Because solubility is significantly impacted by temperature, dilution ratios higher than 1:200 may not dissolve completely due to the solubility limits of the chemical 		
IE6.	<p>Hoses, clamps, fasteners, connectors, gaskets, and seals</p> <ul style="list-style-type: none"> □ Periodically inspected for tightness, breaks, tears, weakness, fatigue, and wear 		
IE7.	<p>Remove solenoid valve or sensor strainers from housing and clean once a year</p>		

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<i>Chemigation Injection Site</i>			
CS1.	Pesticide containers <input type="checkbox"/> Empty containers rinsed according to label instructions and rinsate added to application tank <input type="checkbox"/> Rinsed containers prepared for recycling or disposal <input type="checkbox"/> Leaking or damaged containers repacked for future use or overpacked & secured for waste collection		
CS2.	Pesticides and fertilizer stored away from water sources and from irrigation pump and injection site		
CS3.	Irrigation system at operating pressure before initiating chemigation or fertigation application		
CS4.	Overspray, drift, and surface runoff <input type="checkbox"/> Reset arc adjusters and trip pins on sprayheads, if necessary <input type="checkbox"/> Adjust azimuth settings at pivot panel, trip blocks at pivot tower, or other controller mechanism for endgun or solenoid-controlled nozzles <input type="checkbox"/> Readjust irrigation application rate to match soil infiltration rate		
CS5.	Water does not collect or pond around the injection site		
CS6.	Shovels, diking or absorbent materials, PPE, and overpack drums available on-site for spill response		
<i>Application Tank</i>			
AT1.	Stock solutions <input type="checkbox"/> Intake strainer at the end of the suction line should be suspended 3 to 4 inches above the tank bottom to prevent the siphoning of precipitate material from the stock solution.		
AT2.	Drip pan placed under valves to catch spillage, particularly when coupling/uncoupling hoses		
AT3.	Tank periodically inspected for leaks, cracks, or holes.		
<i>Injection Equipment</i>			
IE1.	Injection line tubing <input type="checkbox"/> Check for deformation (i.e., discoloration, softness, bulging), cuts, pinholes, tears, ruptures, abrasion, or wear points. Be aware of products that can weaken hose integrity. <input type="checkbox"/> Inspect injection line and screen for flow obstructions		
IE2.	Injection line check valve <input type="checkbox"/> Valve is not leaking <ul style="list-style-type: none"> ▶ Prior to attaching hose from injection pump, bring irrigation system up to pressure and check for leakage through the injection line check valve. ● Ideally, discharge should occur near the middle of the water stream, especially if first nozzle is located within 30 feet of the injection point and the pipeline does not contain an elbow or bend to aid 		

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	with chemical mixing and 2) the product is corrosive. <input type="checkbox"/> Bleeder valve attached to inlet end of injection line check valve ▶ Product collected when bleeding air from the injection line is placed into the application tank		
IE3.	Injection pump <input type="checkbox"/> No obstructions in the in-line screen or strainer or within the injection line <input type="checkbox"/> No obstructions in suction and discharge valves that keep valve balls from seating <input type="checkbox"/> Seals should not leak <input type="checkbox"/> Inspect bearings for signs of wear, repack or replace as suggested by the manufacturer		
IE4.	Manifolds, elbows, fittings, joints, seals, and gaskets, and pivot collection ring <input type="checkbox"/> Periodically inspect for leaks		
IE5.	Hoses, clamps, fasteners, connectors, gaskets, and seals <input type="checkbox"/> Inspect for tightness, breaks, tears, weakness, fatigue, and wear		

Chemical Injection

CI1.	Calibration <input type="checkbox"/> Injection rate verified with injection pump operating against operating pressure of irrigation system <input type="checkbox"/> Initial calibrations taken with at least 20 second readings <input type="checkbox"/> Final calibration check should be at least a five minute reading		
CI2.	Recalibration <ul style="list-style-type: none"> ● Injection rate verified at least once every two hours ● Performed whenever water flow rate varies due to sequencing of endguns and solenoid-controlled nozzles on spans or on swing arms 		

Monitoring Application

MA1.	Routine site visits <ul style="list-style-type: none"> ● At least once every four hours throughout the application unless pesticide label provisions require more frequent monitoring <input type="checkbox"/> Equipment operating properly <input type="checkbox"/> General maintenance performed		
MA2.	Constant monitoring <ul style="list-style-type: none"> ● Required whenever a sensitive area is prone to overspray or to physical drift or it will likely to occur <input type="checkbox"/> Scout perimeter of treatment site <input type="checkbox"/> Correct operation of solenoid controllers or arc settings and trip pins <input type="checkbox"/> No offsite runoff, overspray, or physical drift occurring		

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No.	Item	Action Needed or Taken	Date
<i>Label Provisions, Handler Safety, and Community Response</i>			
LP1.	Appropriate notification provided to workers and handlers <input type="checkbox"/> Verbal <input type="checkbox"/> Field posting <input type="checkbox"/> Dual notification (verbally and field posting)		
LP2.	Operation, Emergency Response, and Preparedness Plan (refer to sample plan) <input type="checkbox"/> On-site and accessible to employees		

Post-Chemigation Assessment

No.	Item	Action Needed or Taken	Date
Chemigation Injection Site			
CS1.	Site clean up <input type="checkbox"/> Spilled product cleaned up and disposed of in a proper manner <input type="checkbox"/> Unnecessary equipment removed <input type="checkbox"/> Site secured (i.e., lock placed on ¼ turn valve on tank or fenced area locked)		
CS2.	Shovels, diking or absorbent materials, and PPE <input type="checkbox"/> Replenish material used and return equipment to site		

Antipollution Devices			
AP1.	Backflow devices undamaged and operate correctly <input type="checkbox"/> Irrigation mainline check valve <input type="checkbox"/> Vacuum relief valve <input type="checkbox"/> Low pressure drain <input type="checkbox"/> Inspection port <input type="checkbox"/> System interlock (i.e., pressure switch, flow meter)		
AP2.			

Injection Equipment			
IE1.	Rinse out application tank after each application or at the end of each treatment period <input type="checkbox"/> Rinsate injected into the irrigation system and applied onto the application site <ul style="list-style-type: none"> ● Pesticide cannot remain in a tank for 14 days after an application unless wholly contained in a secondary containment structure 		
IE2.	Flush injection equipment with clean water immediately after injection is complete		
IE3.	Flush irrigation system for a time period at least equal to the fill or charge time <ul style="list-style-type: none"> ● Dye-marker is recommended to determine travel time from injection point to the most distant riser 		
IE4.	Wash off injection equipment and irrigation system after each application, especially before handling		
IE5.	Manifolds, elbows, fittings, joints, seals, and gaskets, and pivot collection ring <input type="checkbox"/> Examine for excessive leaks		
IE6.	Hoses, clamps, fasteners, connectors, gaskets, and seals <input type="checkbox"/> Inspect for tightness, breaks, tears, weakness, fatigue, and wear		
IE7.	<input type="checkbox"/> Flush filter housing and screen after each use.		

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No.	Item	Action Needed or Taken	Date
<i>Pesticide Containers</i>			
PC1.	Plastic Containers <input type="checkbox"/> Rinsed containers prepared and kept dry for recycling or disposal <input type="checkbox"/> Unrinsed containers stored with a fastened lid and intact label in a secure storage site <input type="checkbox"/> Remaining product removed from injection site and secured in a secure storage site <input type="checkbox"/> Overpacked waste material removed from injection site and secured for a waste collection event <input type="checkbox"/> Leaking or damaged containers repacked for future use or overpacked & secured for waste collection		
PC2.	Paper Containers <input type="checkbox"/> Contents completely emptied from the bag <input type="checkbox"/> Bags secured from wind and moisture <input type="checkbox"/> Bags disposed of by returning to the dealer or taken to a landfill <input type="checkbox"/> Remaining product removed from injection site and secured in a secure storage site <input type="checkbox"/> Leaking or damaged containers repacked for future use or overpacked & secured for waste collection		
PC3.	Mini-Bulk Containers <input type="checkbox"/> Returned to dealer		
<i>Label Provisions, Handler Safety, and Community Response</i>			
LP1.	Complete pesticide application record the same day that application is finished		
LP2.	Field posting removed within 72-hours after the end of the REI		
LP4.	Update central notification board		
LP5.	Operation, Emergency Response, and Preparedness Plan (refer to sample plan) <input type="checkbox"/> Information updated or corrected		