



Aquatic Facility Evaluation

Weston Aquatic Center
Weston, Wisconsin

September 14, 2016

Prepared For:

Village of Weston
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Prepared By:

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Executive Summary

WTI has been commissioned by the Village of Weston to report on the current condition of the outdoor, municipal pool located at 5815 Alta Verde Street. WTI visited the facility on July 16, 2016, toured the pool and related amenities, and met with staff to discuss operations. The enclosed report documents the observations from the site visit and outlines recommended capital and operational changes. Below is a summary of the recommendations and estimated capital costs. In the detailed descriptions of the report most costs are estimated within a given range. For simplicity, each category has been summed using the highest value of each range.

Recommendations

Pool Vessel – <i>repair of pool wall substance issues</i>	\$10,000
Pool Finish – <i>installation of tile surrounding inlets</i>	\$50,000
Pool Gutter – <i>grating replacement, negative slope repair, slide flume coping repair</i>	\$225,000
Play Structure – <i>replacement of play structure</i>	\$350,000
Water Riders – <i>anchor replacement</i>	\$4,000
Crossing Activity – <i>safety padding replacement, floating pad refurbishment</i>	\$20,000
Waterslide Tower Complex – <i>repair start tub, non-slip surface to stairs, re-align supply pipe, re-gelcoat flume</i>	\$50,000
Internal Barriers – <i>replacement of loose posts</i>	\$6,000
Deck Showers – <i>replace grating</i>	\$4,000
Filtration System – <i>replace vacuum DE filter with Regenerative Media Filter</i>	\$275,000
Heating System – <i>replace pool heaters</i>	\$32,000
Water Treatment System – <i>install ultraviolet supplementary disinfection system</i>	\$45,000
 Total Capital Cost of Recommendations	 \$1,071,000

Project Background

WTI has been commissioned by the Village of Weston to visit and observe the outdoor, municipal pool located at 5815 Alta Verde Street. The purpose of the visit and subsequent report is to observe the current condition of the facility, document deficiencies, and recommend repairs and replacements. WTI visited the facility on July 16, 2016, toured the pool and related amenities, and met with staff to discuss operations. The following report documents the observations from the site visit and outlines recommended capital and operational changes.

Introduction

The Weston Aquatic Center has been excellently maintained and operated since its construction in 1999. Numerous repairs and preventative maintenance improvements have been completed and staff operators are very knowledgeable about the operational needs and maintenance requirements of an outdoor aquatic center. Thus, there is not a lengthy list of items needed with respect to increases in health and safety. Most items involve improvements in operational efficiency and improvements in the aquatic program offerings of the facility. Efficiency items allow the facility to maintain sustainable operations with current advancements in technology and processes. Program improvements revitalize the appeal of the facility and aim to ensure the long-term participation and support of the community.

Observations

The following pages contain descriptions of the observations from the site visit and any resulting recommendations. Related photographs taken during the visit, if available, are also referenced and shown in numerical order at the end of the report. Observations are categorized and ordered as listed below:

- Pool Vessel
- Pool Finish
- Pool Gutter
- Pool Drains
- Play Structure
- Water Riders
- Crossing Activity
- Waterslide Tower Complex
- Drop Slide
- Diving Board
- Lifeguard Stations
- Handrails
- Chairlift
- Internal Barriers
- Pool Deck
- Chairs and Lounges
- Shade Structures
- Deck Showers
- Entry Area
- Change Rooms
- Lockers and Storage
- Signage
- Concessions
- Circulation Pumps
- Filtration System
- Heating System
- Water Treatment System

Pool Vessel

The pool vessel appears to be structurally sound, however, there are several areas indicating problems at or near joints in the structure. There are areas, particularly in the deep end of the pool, where a black/dark substance appears to be pushing into the pool. This is perhaps material from the water-stop used during construction and formation of the pool vessel wall, or also some other material from outside the pool wall. Likewise, there is cracking of the pool finish in these same areas, which may indicate cracking of the pool vessel beneath the pool finish. Staff previously identified leaking adjacent to a joint in the pool wall, and repaired the leak by cutting into and replacing small areas of the pool wall.

Image 001 – Black/dark substance coming from crack in pool wall

Image 002 – Closer image of black/dark substance shown in Image 001

Image 003 – Cracking along transition in pool wall

Image 004 – Replace/repaired leaking joint in pool wall

Recommendation: The black/dark substance that appears to be coming from cracks in the pool plaster needs to first be identified before the proper solution is applied to fix the issue. This substance should be tested to identify if it is material from a water-stop and what kind of water-stop material. In the event this is a water-stop breaching into the pool, this is occurring only in isolated spots, making the need for extensive pool vessel repair and replacement unlikely. The locations with this issue would likely need to be cut away and inspected for the current placement and condition of the water-stop, then reconstructed/re-filled according to the condition found. The likely cost of such repair is listed below:

Cost Estimate: \$5,000 to \$10,000

Pool Finish

The pool finish is an aggregate plaster, and is original to the pools construction. With the exception of the cracking mentioned above, the pool finish is in good condition. The plaster surface, as intended, feels smooth, yet provides enough slip resistance for safety without being aggressively coarse on guests' feet and hands.

The finish has become stained over time, particularly surrounding the inlets of the circulation system. This staining is consistent with those caused by iron and/or manganese metal ions in the pool water. The city water, which is the source of pool fill water, is reported to have high manganese levels, and is likely the cause of the stains.

The areas immediately surrounding the pool inlets experience some of the highest velocities of pool water, and therefore are exposed to the greatest number of metal ions. Staining is very commonly the worst in a pool surrounding the inlets.

Staff has conducted limited acid washing of the areas around the inlets to help reduce/remove this discoloration. While aggressive acid washing would likely remove most of the stain presence, staff has withheld more extensive acid washing in preference of preserving the quality and texture of the plaster finish.

Image 005 – Pool inlet with mild staining after recent acid washing of inlet area

Image 006 – Pool inlet with more moderate staining

Image 007 – Aerial view (from slide tower) showing staining around inlets in the deep section of the pool

Recommendation: Removing metal ions from pool water is a difficult task. Chemical sequestering agents are available for addition to pool water. While these chemicals do not remove metal ions from water, they attempt to keep the ions in a soluble state,

preventing them from depositing on the surfaces of the pool and creating stains. The periodic addition of a metal ion sequestering agent is recommended.

Recommendation: While aggregate plaster is an excellent pool finish for patron experience, aesthetics, and ease of repair, it is not the most stain resistant pool finish option. Ceramic tile still experiences staining deposits, however, the removal of stubborn stains is typically much easier on tile. WTI recommends the replacement of the plaster finish with a tile finish in a one to two foot area surrounding each inlet. Staining will still occur in the pool, however, periodic cleaning of the tiled areas around the inlets will allow much easier and more complete removal of the stains

Cost Estimate: \$35,000 to \$50,000

Pool Gutter

The pool gutter is a wide, deck level style with PVC grating parallel to the pool edge. The pool gutter grating was replaced in 2007. With the exception of a few select spots, the grating is in good condition. The high concentration of metal ions in the pool water are again evident on the gutter grating. Most areas in frequent contact with the water are stained. Staff reports these stains are able to be removed with very frequent cleaning and washing.

A downside to this style of gutter grating is its permanent placement. With the exception of a few access points, each section of the grating is permanently caulked in place. This prevents accessing the gutter below for inspection, cleaning, or debris removal.

This particular type of gutter grating is no longer manufactured. Therefore, should replacement be necessary, staff will need to have a new grating style retrofitted to function in this pool. The grating underneath the safety padding for the crossing activity was never replaced in 2007 and is the original grating style. This will likely create additional challenges when replacing the safety padding.

There are two locations of the pool gutter which allow water to escape the pool and puddle on the deck. The first area is at the corner of the pool in the zero depth area adjacent to the play structure. The gutter grating was installed in this corner using sections configured in a way to allow water to channel in the indentations of the grating and bypass the openings in the grating. Staff has since cut additional openings in this section of grating and have greatly reduced the amount of water escaping in this area. However, water loss has not been stopped completely. An additional element enabling water to escape at the zero depth entry is the slope of the gutter grating in this area. Pool gutter grating should slope toward the pool, thus making it an uphill climb for any water attempting to bridge the grating. However, in this area the grating actually slopes away from the pool and down to a lower deck. This slope away from the pool is slight, but only aids in the escape of water over the gutter grating.

The second area of the pool gutter where water makes its way to the pool deck is under and around the slide entering the plunge area. There is no pool gutter underneath the slide flume, and the edge of the pool in this location was formed with the same profile as the gutter. Therefore, water skims over the top of this profile, just as it does with the gutter. However in this area the water has nowhere else to go but flow across the deck to the nearest deck drain.

Image 008 – Pool gutter with significant staining on gutter grating

Image 009 – Pool gutter around stair entry with staining on gutter grating

Image 010 – Water on pool deck escaping from corner of pool gutter

Image 011 – Pool gutter corner of zero depth entry area, location of water loss, modified grating with added opening

Image 012 – Zero depth entry area pool gutter showing slope of grating away from pool.

Image 013 – Area under slide as flume enters pool

Image 014 – Water leaking out of pool under and around slide flume

Image 015 – Damaged pool gutter section with modified repair

Image 016 – Indication of gutter grating underneath crossing activity padding

Recommendation: Immediate replacement of the pool gutter grating is not necessary. However, over time with regular wear and tear an increasing number of elements regarding the pool gutter will become more difficult to manage without replacement of the gutter grating. Grating replacement should be planned as a future capital expenditure. At that time the gutter should also be modified to repair the negative slope of the zero depth entry grating, as well as a modification to install gutter and grating underneath the slide flume where it enters the pool. The grating underneath the crossing activity padding should also then be replaced and become uniform with the rest of the pool grating.

Cost Estimate: \$150,000 to \$225,000

Pool Drains

The pool drains appear to be in working order and of the type and style compliance with regulations. The suction grating in the plunge pool supplying water to the slides appears to be of the type considered unblockable, but is only compliant if certified by a qualified engineer.

Pool drains and suction fittings were not evaluated, tested, measured, or examined for compliance with Virginia Graeme Baker Act (VGBA). All facilities should have documentation, acceptable to the Consumer Products and Safety Commission, attesting to the compliance of the existing pool drains and suction fittings. If such documentation does not exist, WTI urges the facility to engage a qualified engineer to provide this certification. While WTI does provide VGBA services, such services are not a part of the scope of work of this report.

Image 017 – One of the main drains, with cover in place, in the deep end of the pool

Image 018 – Suction grating beneath slide flume entry to plunge area

Play Structure

The play structure is located in the zero depth entry area and was manufactured by SCS Interactive. SCS Interactive was purchased by Whitewater West Industries and all product lines merged together. The play structure shows significant wear and tear, and several aspects are no longer functioning. The slide from the top platform of the structure is significantly faded, as are many of the structure's pipes and braces. While the structure was repainted in 2007/2008, several areas of the metal surfaces now have chipping and peeling paint. Multiple valves allowing guests to alter the spray levels of different components do not work and the "hydro-blaster," or water gun, has been removed. Also, the pull ropes to open spray valves are not present.

Image 019 – Play structure with faded slide flume

Image 020 – Play structure platforms and features

Image 021 – Chipping and peeling paint on play structure

Image 022 – Play structure stairs and features

Image 023 – Play structure with spray features activated

Recommendation: The deficiencies of the play structure present an opportunity to replace the structure and revitalize the play value of the pool. The structure should be replaced with a new model with similar water flow requirements to avoid unnecessary mechanical changes.

Cost Estimate: \$150,000 to \$350,000

Water Riders

Four water riders provide young children a play feature in the shallow water of the zero depth entry area. Each water rider is on or adjacent to an underwater safety pad. Staff reports the anchors holding the water riders have been coming loose.

Image 024 – Water riders with safety pads

Recommendation: Remove existing anchors and reset new anchors to secure water riders in place.

Cost Estimate: \$2,000 to \$4,000

Crossing Activity

The crossing activity consists of four concrete posts with synthetic rope netting overhead, seven floating pads colored to simulate logs, and padding on the pool edge on both sides. The netting was replaced last year and is in very good condition. The floating log pads appear in moderate condition but have some peeling on the bottom where the float rests in the water. The padding on the sides of the pool have moderate wear and deterioration, and will need replacement in the near future.

Image 025 – Netting of crossing activity

Image 026 – Floating log themed pads

Image 027 – Safety padding on pool edge

Image 028 – Close-up of floating log pad

Recommendation: The safety padding is crucially important to protecting patrons using the crossing activity from injury when contacting the hard surfaces of the edge of the pool. The safety padding should be replaced with new padding to renew the cushioning and friction abilities of the padding.

Cost Estimate: \$3,500 to \$7,500

Recommendation: The floating pads function properly, however, over time the pads deteriorate with exposure to the weather, sun, and pool water. Floating pads may be removed and sent into repair shops to be resurfaced, and their aesthetic value renewed.

Cost Estimate: \$9,000 to \$12,500

Waterslide Tower Complex

The waterslide complex consists of two body flume slides. The yellow slide is an open flume, serpentine slide terminating in a plunge pool adjacent to the crossing activity, and the red and blue slide is a closed flume, speed slide terminating in a runoff on the deck. The serpentine slide and tower is original to the facility. The speed slide, manufactured by ProSlide Technology Inc., was added in 2010. The speed slide is in good condition, with only minor fading visible on mostly red sections of fiberglass flume.

The open serpentine slide has received appropriate maintenance attention, including refinishing the outside surfaces. The interior of the slide flume shows some minor spots of wear. The start tub of the serpentine slide has moderate cracking around the inside rim. The inside surface of the serpentine slide shows some signs of wear, and small black markings have developed in the gelcoat of the slide flume. These black markings and areas of wear can be reconditioned by applying a new gelcoat to the slide flume.

The slide tower appears in good condition, with some superficial corrosion and water damage. This corrosion does not appear to cause any structural concerns, however, the slide tower should be periodically inspected for structural integrity. The tower is frequently exposed to pool water, and corrosion is an ongoing concern. The stairs of the tower no longer hold drip pans underneath to shield guests from dripping water. However, staff reports this has not been a complaint of patrons. There are also areas on the structure that collect water or have water that is slow to drain away. These areas should be monitored and inspected frequently for any signs of increased corrosion.

The stair treads are constructed of metal risers with concrete tread surface. The rounded metal at the edge of the step is very slippery, especially when wet. This is a hazard to patrons climbing the stairs and may result in a slip and fall on the stairs.

Finally, the connection of the supply piping to the speed slide is not properly aligned. A rubber sleeve connects the line of pipe up the tower to the bottom of the starting tub component. While the sleeve is still in place, the misalignment is stretching and stressing this sleeve. The danger in this misalignment is the eventual bursting or disconnection of the sleeve while the system is operating, resulting in large amounts of water flooding out of the system or personal injury from an objection projected by the disconnection.

Image 029 – Speed slide support tower from beneath

Image 030 – Speed slide open flume section from beneath

Image 031 – Speed slide closed flume section from above

Image 032 – Speed slide starting tub from tower platform

Image 033 – Speed slide runout with deck drain on side

Image 034 – Speed slide runout with deck drain on side

Image 035 – Speed slide runout surge containing drain

Image 036 – Speed slide deck drain

Image 037 – Serpentine slide support tower from beneath

Image 038 – Serpentine slide starting tub from tower platform

Image 039 – Serpentine slide starting tub inner rim cracking

Image 040 – Outside of serpentine slide flume

Image 041 – Inside of serpentine slide flume

Image 042 – Inside of serpentine slide flume

Image 043 – Serpentine slide open flume from above

Image 044 – Bottom of slide tower stair platform

Image 045 – Slide tower surface corrosion

Image 046 – Bottom of slide tower platform with surface corrosion on beams

Image 047 – Slide tower stair treads with slippery metal edge

Image 048 – Bottom of slide tower stair treads

Image 049 – Slide tower I-beam collecting water

Recommendation: The wear on the inside of the open serpentine slide will only worsen with use and exposure to weather. The surface should be reconditioned before any coarse material of the fiberglass mat starts to be evident or any other abrasive areas can contact riders. Re-gelcoating the flume is recommended.

Cost Estimate: \$30,000 to \$35,000

Recommendation: The cracking in starting tub of the serpentine slide is not causing problems now, but if allowed to worsen, could cause leaking or sharp edges. The starting tub should be repaired with fiberglass patching and resurfaced.

Cost Estimate: \$3,000 to \$6,000

Recommendation: The slippery nature of the steps on the slide tower is a potential hazard to patrons. A high-friction coefficient surface should be applied to the edge of the steps covering the slippery metal surfaces.

Cost Estimate: \$3,000 to \$5,000

Recommendation: As discussed above, the misaligned piping connection to the speed slide start tub is a future hazard and must be repaired. The bracing of the supply piping should be adjusted or potentially the piping reconstructed to provide a properly aligned piping section.

Cost Estimate: \$2,000 to \$4,000

Drop Slide

The drop slide appears in good condition, and similar to the slide tower complex, the drop slide tower has some superficial corrosion and water damage.

Image 051 – Drop slide from above

Image 052 – Drop slide tower from below

Image 053 – Corrosion on drop slide tower

Image 054 – Drop slide flume exterior

Image 055 – Drop slide start tub

Image 056 – Drop slide flume interior

Diving Board

The springboard diving board appears in good condition. The stand for the diving board was recently replaced. There is a moderate amount of corrosion and/or calcium buildup on the stainless steel near the step treads

Image 057 – Diving board and stand

Image 058 – Diving board steps

Recommendation: Increase cleaning of the metal surfaces of the diving board standing, particularly on and around the steps as this area is exposed to the most water from swimmers.

Cost Estimate: Time of Maintenance Staff

Lifeguard Stations

The lifeguard stations are in good working order and the stainless steel hardware is clean and not corroded.

Image 059 – High-level lifeguard station

Image 060 – Low-level, mobile lifeguard station

Handrails

The stainless steel handrails and hardware around the pool are cleaned regularly, and would not be in the condition they are without this periodic cleaning. However, some scale formation, or calcium buildup, has formed and limited places spots of rust and corrosion exist.

Image 061 – Handrails of pool ladder with scale formation on bottom of handrails and escutcheons

Image 062 – Rust forming on pool ladder handrail

Recommendation: Increase cleaning of the metal surfaces of handrails, stands, and other hardware around pool.

Cost Estimate: Time of Maintenance Staff

Chairlift

The chairlift appears in good condition and is a manufactured model known to be ADA compliant.

Image 063 – Chairlift located on pool deck partially covered

Internal Barriers

The internal barriers, consisting of wooden posts and rope, cordon off areas guest should not be gathering and help to guide patrons along pathways. Some of these posts are loose and not secure in their foundation. Over time water from the pool and weather has deteriorated the wood post where it meets the soil.

Image 064 – Post in pool deck without concrete setting

Image 065 – Post and rope barrier with additional netting

Recommendation: Remove loose posts and replace with new posts. Set new posts in holes with poured concrete.

Cost Estimate: \$2,000 to \$6,000

Pool Deck

The pool deck is a concrete pad surrounding the pool. The deck has a brushed concrete finish and is scored in a rectangular pattern. Spot drains remove standing water from the deck as a result of rain and bather splash out from the pool. The spot drains and slope of deck around drains appears to be performing adequately. The pool deck is in great condition considering its age and exposure to harsh Wisconsin winters. There are a few limited locations with mild cracking, and one location leading to an outdoor shower where the deck has heaved and has subsequently been grinded level again.

Image 066 – Pool deck with spot drain and rectangular scoring pattern

Image 067 – Pool deck with spot drain and rectangular/radial scoring pattern

Image 068 – Grinded area of walkway to eliminate tripping hazard

Image 069 – Mild cracking a pool deck section corner

Chairs and Lounges

The deck chairs and lounges are primarily PVC material, and appear in good condition and appropriate quantity.

Image 070 – White PVC lounges

Shade Structures

Shade structures at the facility consist of several large, permanently placed, umbrella style structures. These shade structures are manually opened and appear in good working condition. Staff takes good care of the fabric on these structures and should continue to remove this fabric during the closed winter season.

Image 071 – Shade structure in closed position

Deck Showers

The facility contains two outdoor shower stations. The grating beneath these shower stations is not flush with the surrounding concrete, is uneven in places, and has sharp edges in some areas.

Image 072 – Shower station adjacent to sand volleyball area

Image 073 – Shower station grating

Image 074 – Shower station adjacent to sand play area

Recommendation: Remove and replace shower grating with flush, leveled, PVC grating

Cost Estimate: \$2,000 to \$4,000

Entry Area

The entry area contains a front desk and separates admitted guests between the men's and women's locker room. At busy times there are lines leading outside the door of guests waiting for admittance. Reconstruction of the entry area would be needed to incorporate more than two check-in points in the current entry area.

Image 075 – Outside of main entry area

Image 076 – Main entry area front desk

Change Rooms

The changing rooms contain benches for changing, toilets, sinks, and group showers. The group showers are frequently left on and result in wasted water. Showers appear to have proper slow and drainage. The changing area is an open room with benches with little opportunities for storage. Guests leave bags and other articles in the changing room and clutter the space for others. Any future renovations of the bathhouse should consider more popular changing room layouts, involving individualized showers and large storage lockers. Family changing rooms are also an increasing trend and should be considered.

The general condition of the building is moderate and starting to show its age. The building will continue to increase the demands on maintenance staff as age brings further problems. The building hot water heaters, for showers and domestic hot water, are an item of concern due to age and should be monitored for failure. The mechanical spaces are also unheated and therefore not protective of the harsh winter cold. Maintenance staff already uninstalls the pool circulation pump motors annually to remove them from these freezing conditions.

Image 077 – Group showers in men’s changing room.

Image 078 – Drainage for showers in men’s changing room

Image 079 – Changing room with numerous patron articles

Lockers and Storage

Lockers are available for guest storage and are located outside of the building adjacent to the changing rooms. The lockers are in good condition and working order, however, their size is inadequate for the bags and articles of many guests. Future bathhouse renovations should consider installation of larger lockers for patron use.

Image 080 – Coin operated lockers for guest use

Signage

The facility contains the required signage for pool rules and other warnings as required by Wisconsin code.

Image 081 – Pool rules sign and facility capacity

Image 082 – Other facility signage

Concessions

The pool facility is serviced by vending machines and a comprehensive kitchen providing concessions. The equipment in the concession kitchen is reported to be in good operating status and the area appears clean and well maintained. Staff reports a periodic leaking problem with one of the concession windows, which may require window repair or replacement. The concession area also provides seating under umbrella shade structures.

Image 083 – Concession window and menu

Image 084 – Vending machines providing drinks

Image 085 – Concession seating area with shade structure in open position

Image 086 – Kitchen area of concessions

Circulation Pumps

The pool water is circulated by a 40 hp circulation pump located in a pump pit adjacent to the filter tank. There are three additional pumps: two 25 hp and one 20 hp, which supply the water slides and play structure. The pumps and motors appear in good condition and without significant corrosion or wear. The interior of the pumps was not observed, and should be inspected by staff at least annually. In particular, the impellers of each pump, commonly one of the first components to need replacement, should be examined for deterioration, corrosion, damage, or debris. The strainer bodies and baskets on the three activity pumps also appear in good condition.

The main circulation pump has had a VFD installed to modulate the output of the pump. Prior to the installation of the VFD the pump was throttled to approximately 25% capacity. The VFD has greatly increased the efficiency of the pump. VFDs allow the motor to run at a lower output appropriate to the exact application and flow required at the time, instead of operating the motor at maximum output and restrict the flow of water to the appropriate levels. Therefore, VFDs can provide significant electrical usage savings. The three activity pumps are not currently governed by VFDs, and would benefit from the installation of a VFD on each pump.

Image 087 – Main circulation pump pulling water through filter grids and out of filtration tank

Image 088 – VFD and VFD control panel

Image 089 – Concrete deck above surge tank

Image 090 – Pump pit with three activity pumps

Filtration System

The filtration system consist of a large filter tank holding water from the surge tank. Within this tank are numerous filter grids, coated with Diatomaceous Earth (DE). The main circulation pump pulls water through the filter grids and coating of DE, entrapping dirt and debris in the DE. This system requires frequent flushing of the dirt filled DE and re-coating of the filter grids with fresh DE.

Vacuum DE filters provide excellent micron removal with some of the finest filtering available in the pool industry. Since the construction of this pool, many advancements have been made in pool filter technology. Regenerative Media (RM) filters provide the same excellent micron removal of traditional DE filters, without the frequency of re-coating the filter grids. RM filters are capable of providing very significant water and energy usage savings. The health of the pool operator is also improved with the use of Perlite instead of DE. Perlite is a synthetic replacement for DE and does not present the carcinogenic properties of DE.

Image 091 – Overview of the filtration tank and filter grids

Image 092 – Overview of the filtration tank and filter grids

Image 099 – Autofill and water level sensor system located in filter tank

Image 100 – Bags of DE stored in mechanical room

Recommendation: The long term efficiency of the facility will benefit from the replacement of the current filter system with a Regenerative Media filter system. RM

filters may be installed in place of the current filtration tank and provide savings in water, energy, and maintenance labor.

Cost Estimate: \$ 225,000 to \$275,000

Heating System

The pool is heated using two independent, gas-fired Lochinvar pool heaters. The internal components of the heaters were not evaluated, however, the heat exchanger header visible on the side of the heaters has significant corrosion. This indicates further possible corrosion on the heat exchangers and is a sign of substantial deterioration of the heater.

Image 093 – Pool heaters stacked for space savings

Image 094 – Exchange header of pool heater with significant corrosion

****After the date of the site observation, staff reported the failure of one pool heater.****

Recommendation: The pool heaters are beyond their typical lifespan. Failure and frequent repairs are likely to occur. Replacement of the pool heaters with similar high-efficiency pool heaters is recommended.

Cost Estimate: \$24,000 to \$32,000

Water Treatment System

The pool water treatment system involves the injection of Sodium Hypochlorite (liquid chlorine) into the pool water to disinfect unwanted contaminants. The pH level of the water is corrected with the addition of hydrochloric acid (muriatic acid). Both ORP and pH levels are monitored using a Strantrol chemical controller. The chemical controller dictates the frequency of both liquid chlorine and muriatic acid injection through diaphragm pumps. Staff does not report any issues with the chemical controller or related probes. Manual water testing is performed using both Taylor DPD and Palintest test kits present in the mechanical room.

Image 095 – Strantrol chemical control, flowcell and probes

Image 096 – Diaphragm pumps for injection of both liquid chlorine and muriatic acid

Image 097 – Chemical storage with liquid chlorine tank in background

Image 098 – Containers of muriatic acid

Image 100 – Buckets of calcium hypochlorite used for pool shocking (adjacent to stored DE)

Image 101 – Pool water chemistry test kits

Recommendation: The pool water treatment system does not include any form of supplemental sanitation. With the growing concern of communicable diseases, ever adapting bacteria and pathogens, and concerns for remediation of chloramines, ultraviolet disinfection systems provide an added layer of safety for pool water sanitation systems. The facility should consider the addition of a medium-pressure ultraviolet disinfection system.

Cost Estimate: \$35,000 to \$45,000

Appendix:

Site Observation Images

collected on 7/16/2016

12 FT 0 IN

IMAGE 001



IMAGE 002

IMAGE 003



IMAGE 004



IMAGE 005



IMAGE 006



IMAGE 007



IMAGE 008

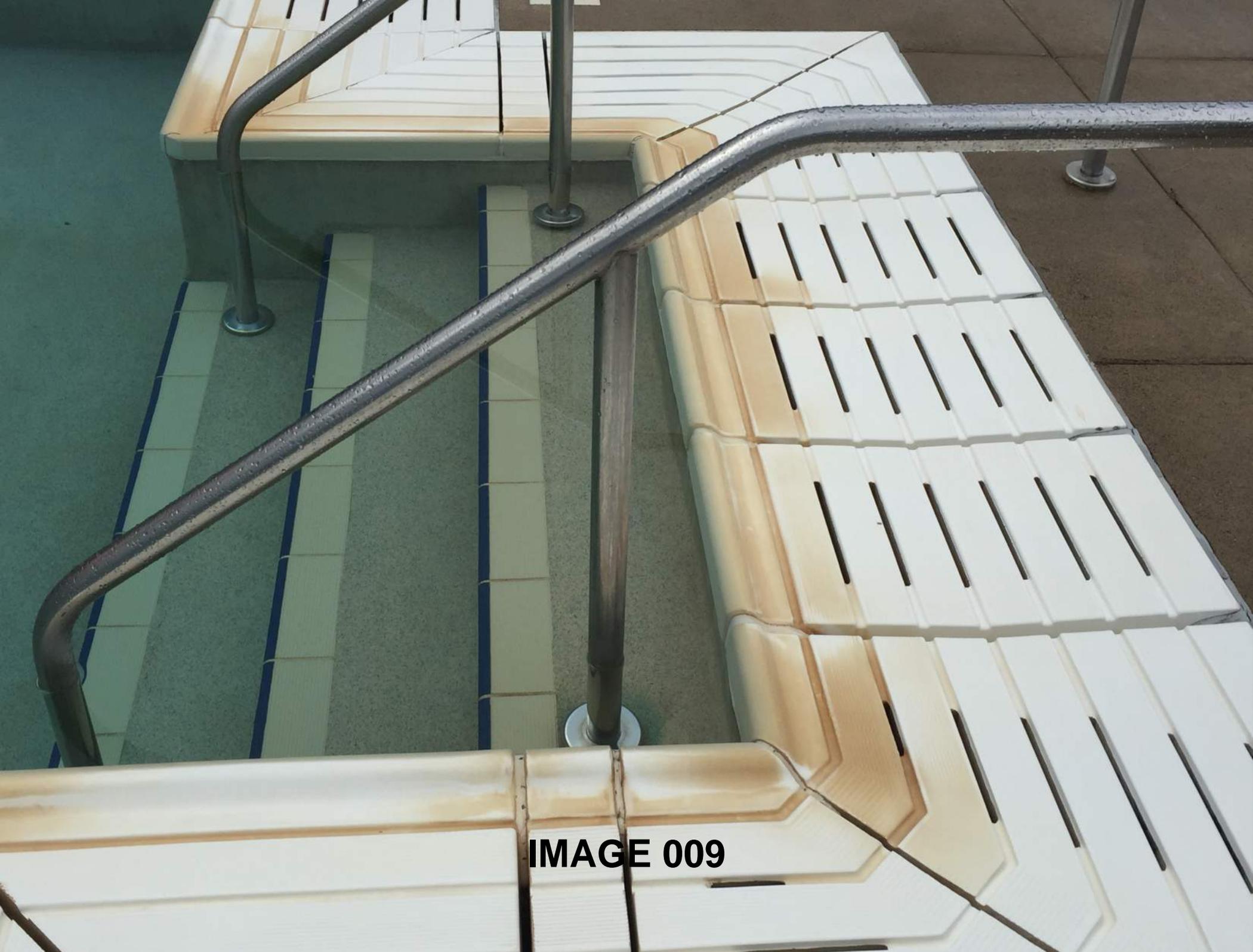


IMAGE 009



IMAGE 010



IMAGE 011



IMAGE 012

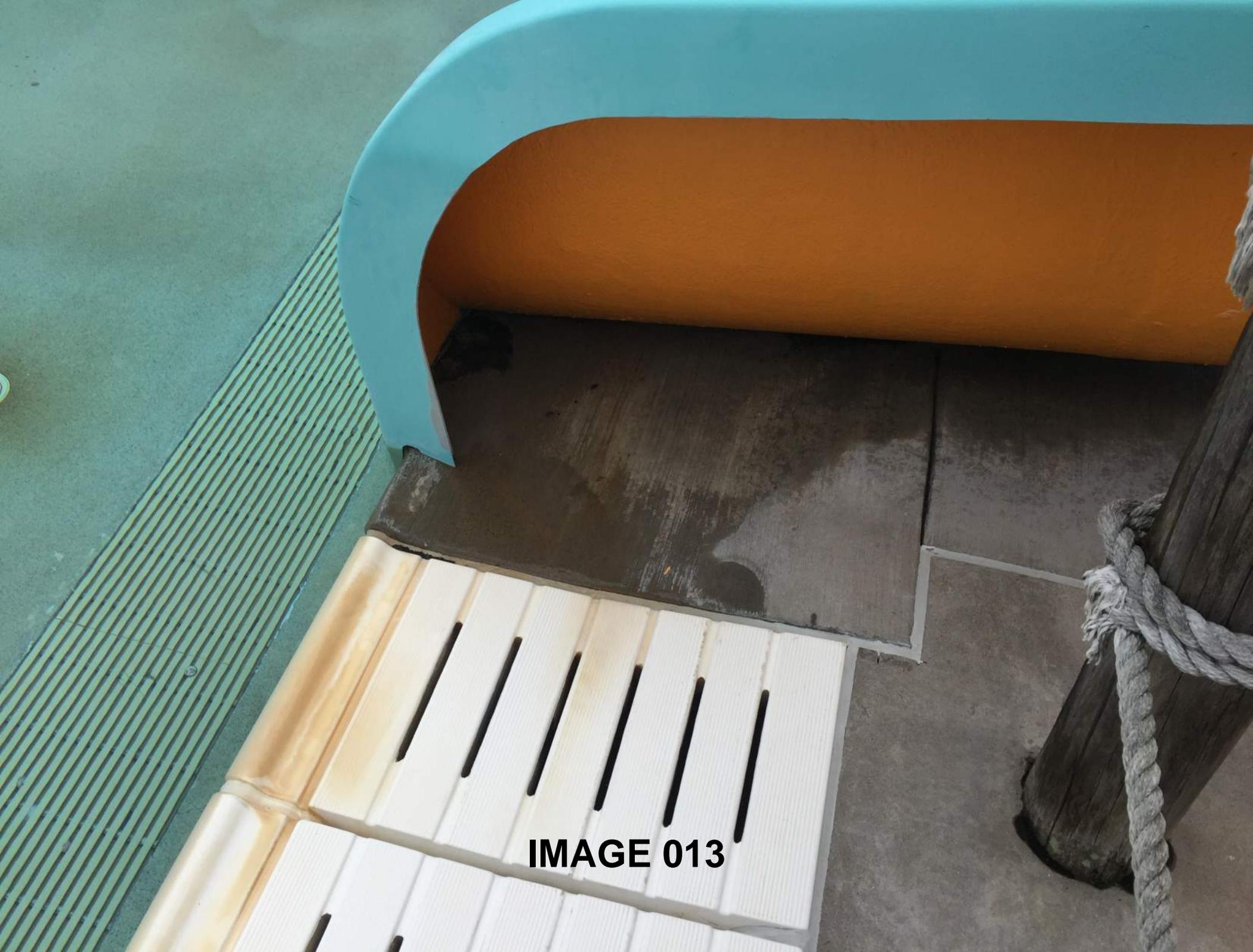


IMAGE 013



IMAGE 014



IMAGE 015



IMAGE 016

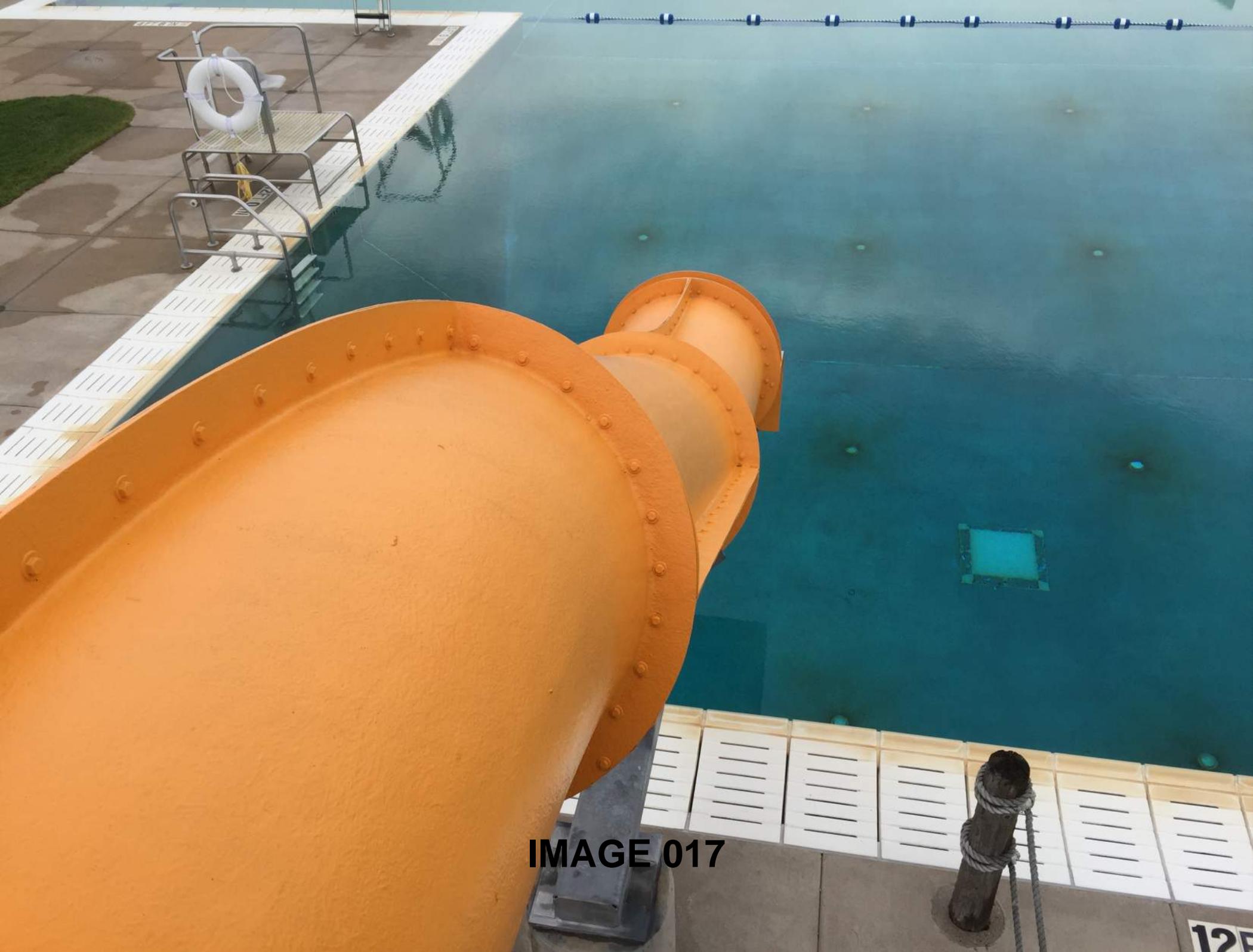


IMAGE 017

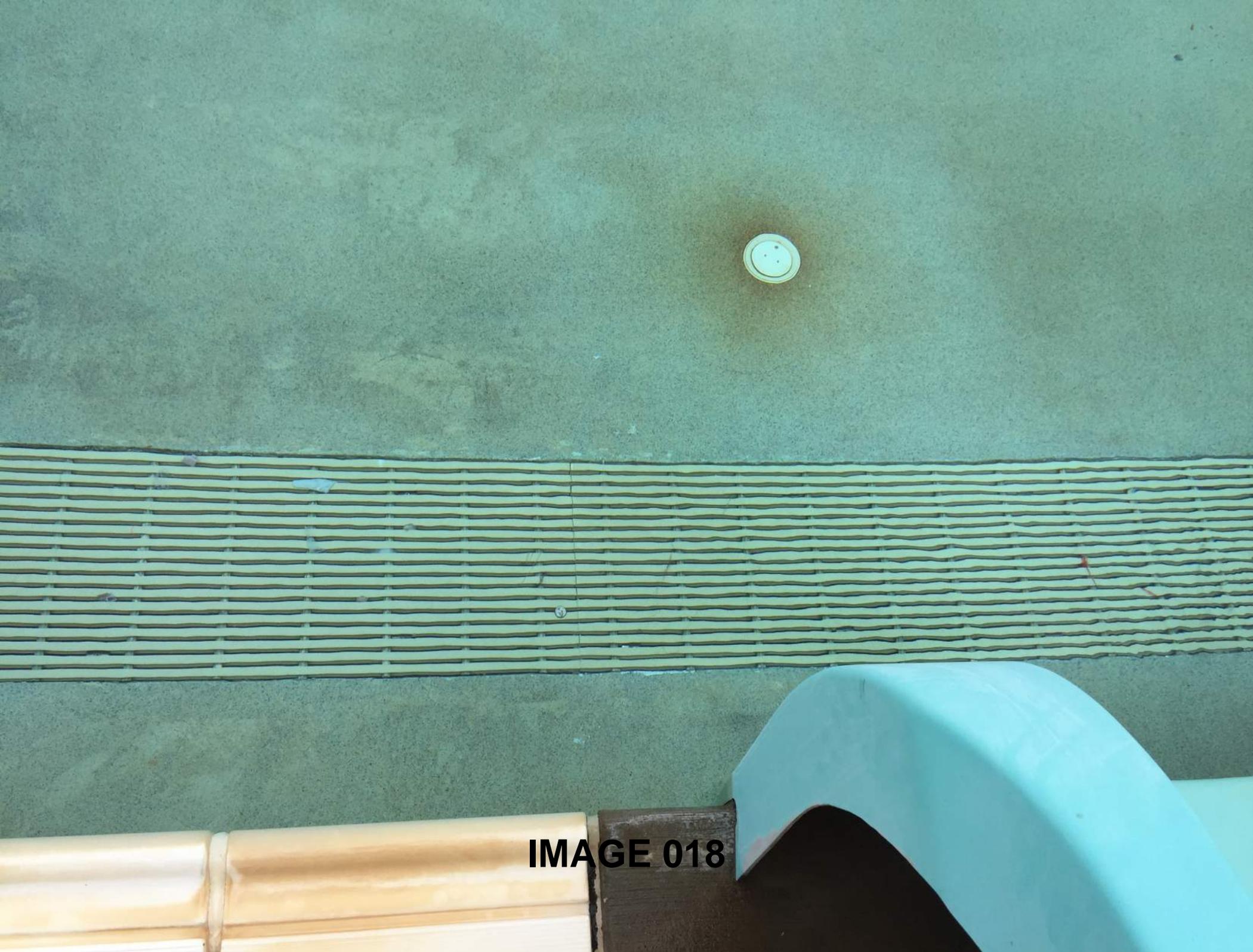


IMAGE 018



IMAGE 019



IMAGE 020



IMAGE 021



IMAGE 022



IMAGE 023

0 FT 0 IN

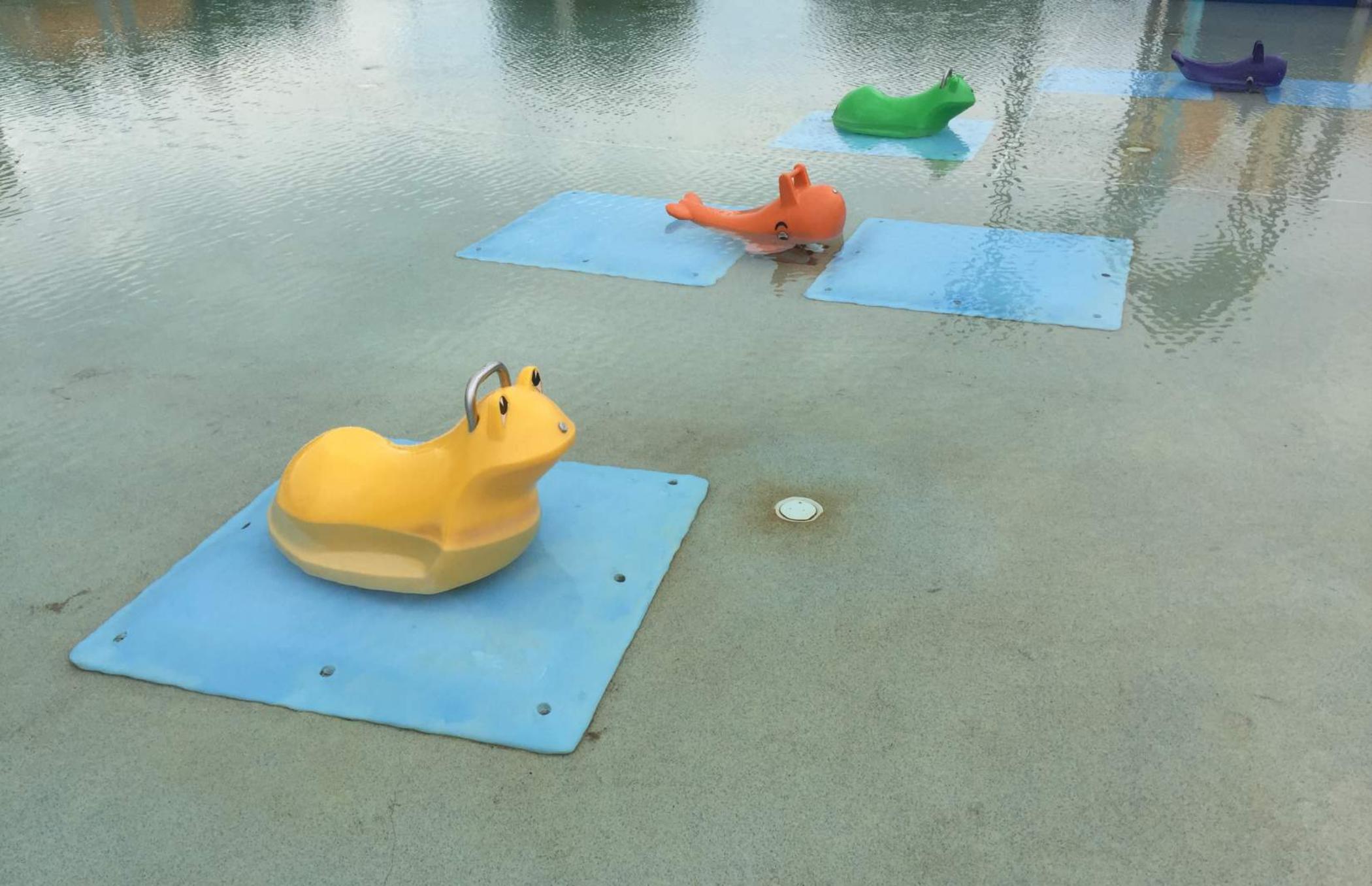


IMAGE 024



IMAGE 025



IMAGE 026



IMAGE 027



IMAGE 028



IMAGE 029



IMAGE 030



IMAGE 031

ERS MUST
AY DOWN
O SITTING

IMAGE 032



IMAGE 033



IMAGE 034



IMAGE 035

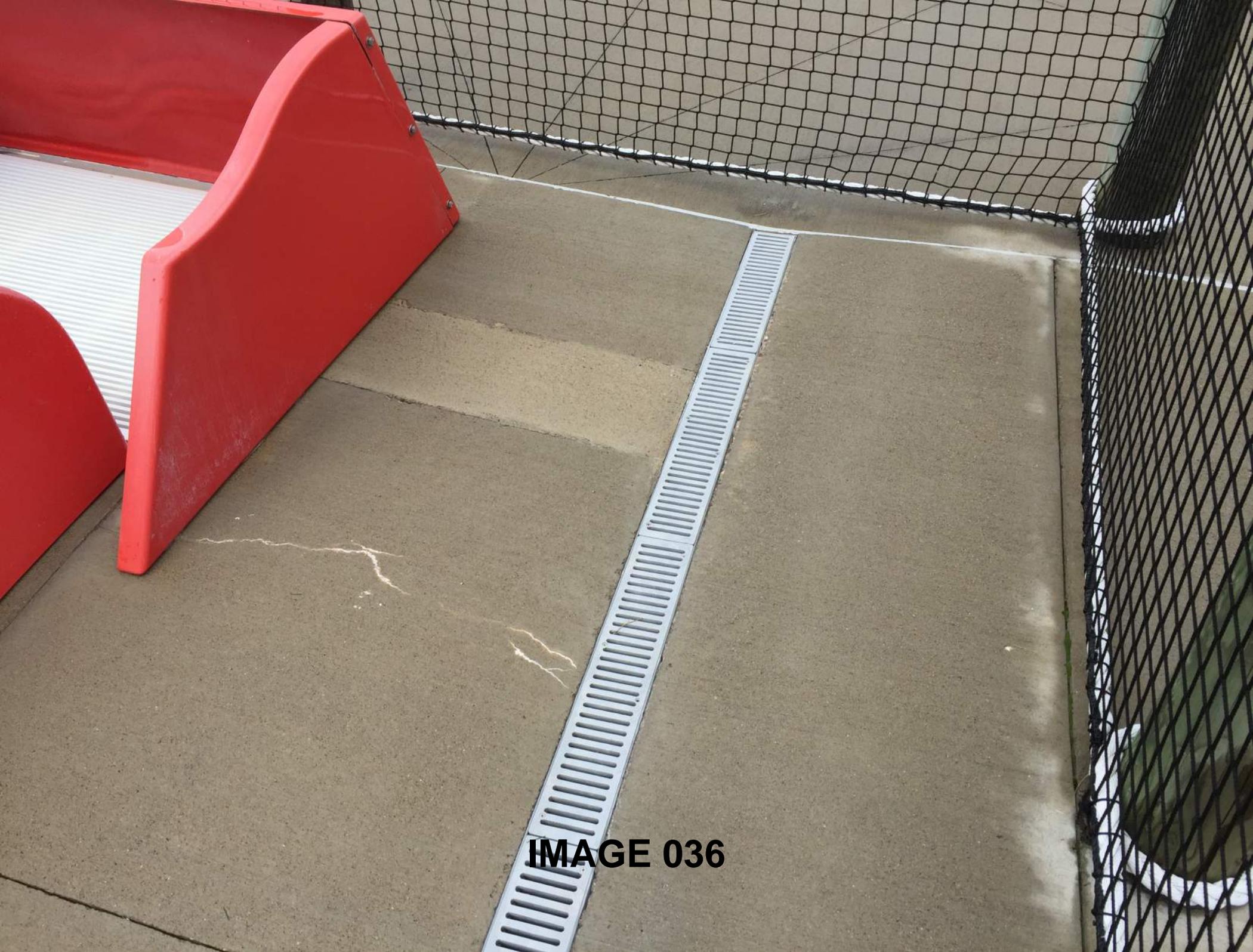


IMAGE 036



IMAGE 037



IMAGE 038



IMAGE 039

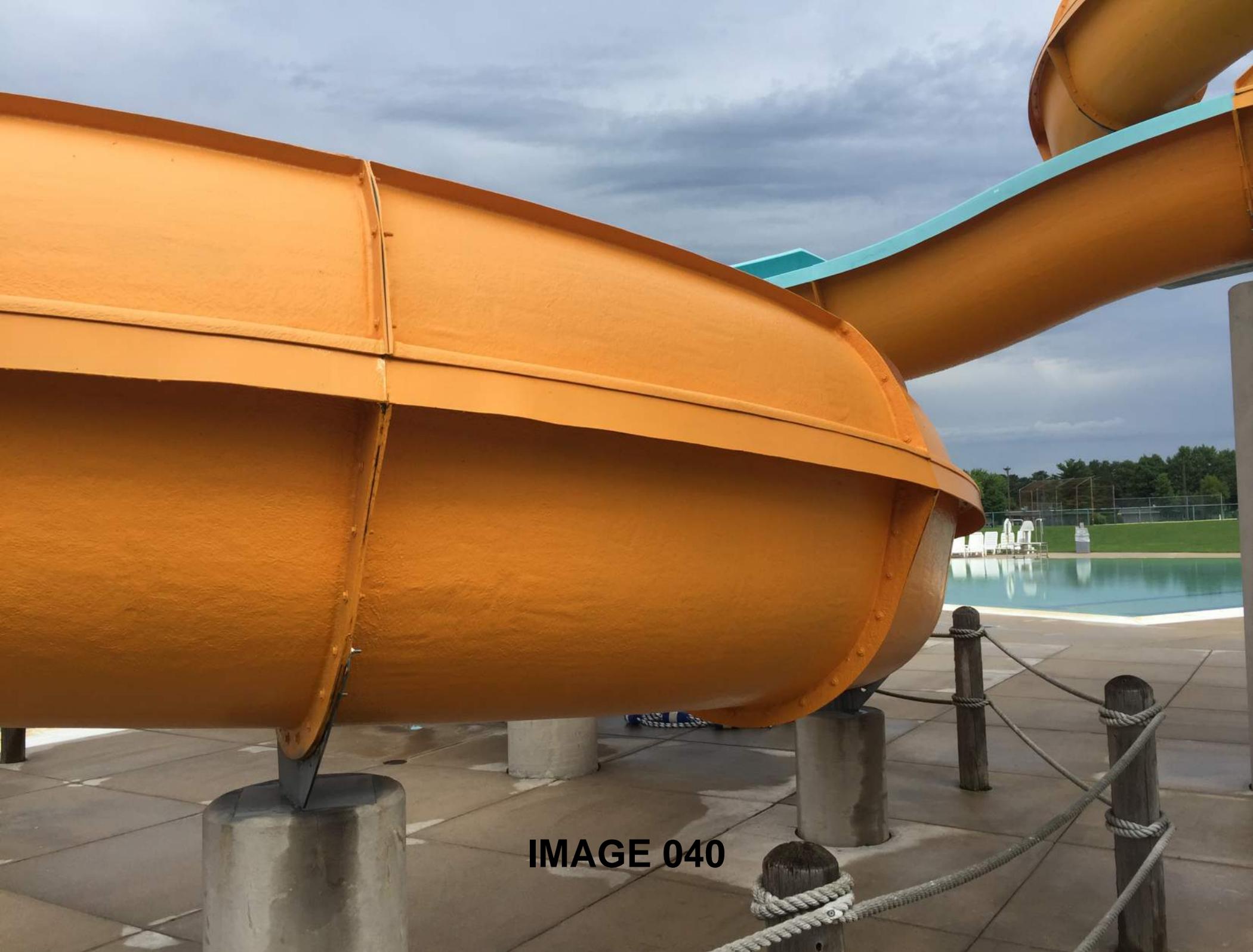


IMAGE 040



IMAGE 041



IMAGE 042

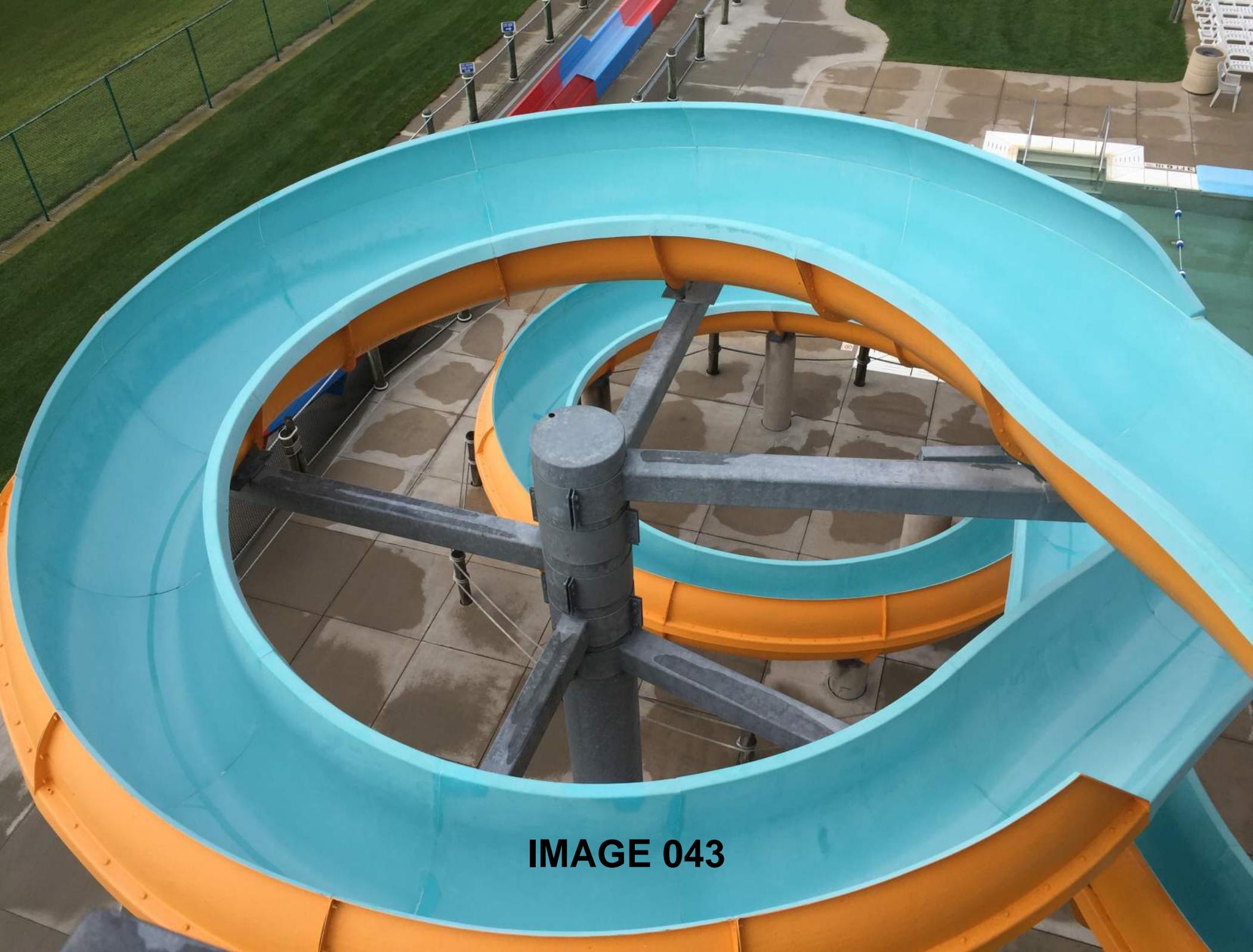


IMAGE 043



IMAGE 044



IMAGE 045



IMAGE 046



IMAGE 047



IMAGE 048



IMAGE 049



IMAGE 050

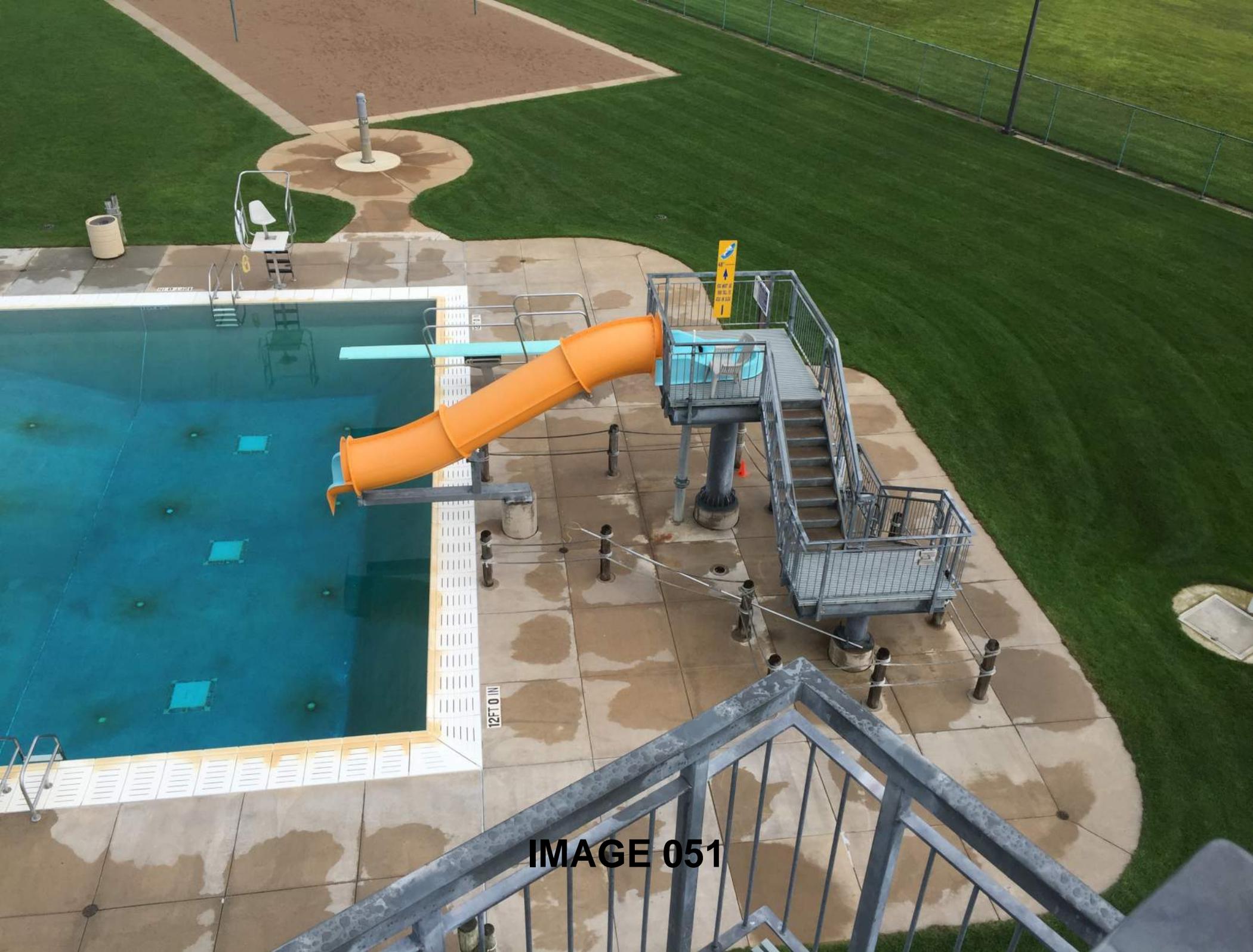


IMAGE 051



IMAGE 052



IMAGE 053

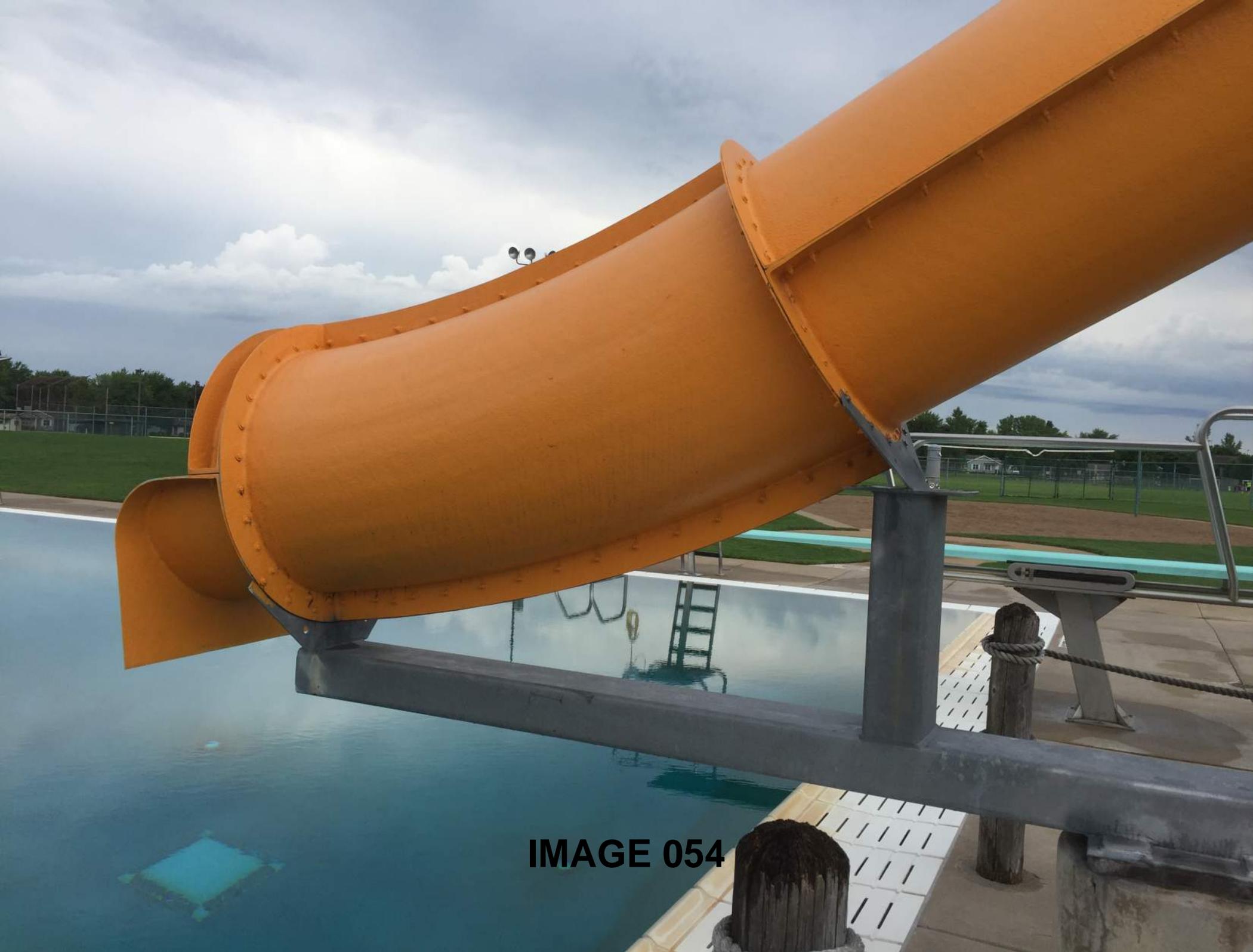


IMAGE 054



IMAGE 055



IMAGE 056



IMAGE 057



IMAGE 058



IMAGE 059



WALK
don't
RUN

IMAGE 060



IMAGE 061



IMAGE 062



3 FT 0 IN  IMAGE 063



IMAGE 064



IMAGE 065



IMAGE 066



IMAGE 067



IMAGE 068



IMAGE 069



IMAGE 070



IMAGE 071



IMAGE 072



IMAGE 073



IMAGE 074



IMAGE 075

MEN
←

SURVEILLANCE
CAMERAS
IN USE

WOMEN
→

STAMP
D FOR
TRY

Emergency
Phone

RESTROOM

Daily
Admission



Season
Passes

MAKE CHECKS PAYABLE
TO THE VILLAGE OF
WESTON

SWIM DIAPERS
AVAILABLE
UPON REQUEST

IMAGE 076



IMAGE 077



IMAGE 078



IMAGE 079



IMAGE 080

**867 PERSON
POOL LIMIT**

POOL RULES

- DO NOT ENTER THE POOL IF YOU HAVE A COMMUNICABLE DISEASE OR AN OPEN CUT
- DO NOT BRING FOOD, DRINK, GUM OR TOBACCO INTO THE POOL
- SHOWER BEFORE ENTERING THE POOL AND AFTER USE OF TOILET FACILITIES
- DO NOT RUN OR ENGAGE IN ROUGH PLAY IN THE POOL AREA
- DO NOT BRING ANIMALS INTO THE POOL AREA
- DIAPER CHANGING ON THE POOL DECK IS PROHIBITED
- GLASS AND SHATTERABLE ITEMS ARE PROHIBITED IN THE POOL AREA
- ALL CHILDREN AND NON-SWIMMERS MUST BE ACCOMPANIED BY AN ADULT OR RESPONSIBLE ADULT SUPERVISOR
- SPITTING, SPOUTING WATER, BLOWING THE NOSE OR DISCHARGE OF BODILY WASTES IN THE POOL IS STRICTLY PROHIBITED

IMAGE 081

**SURVEILLANCE
CAMERAS
IN USE**

SCS PLAY STRUCTURE RULES

1. No Running On Or Around The Water Play Unit.
2. No Headfirst Sliding On Slides.
3. No Climbing On Pipes Or Handrails.
4. No Hanging Or Swinging On Pull Ropes.
5. Valves And Handles Are Accessible To Allow Children & Adults To Throttle & Play With The Water. We Encourage You & Your Children To Turn, Pull & Open These Valves & Have Fun With The Water Effect You Create.

**ONLY CHILDREN 50 LBS
OR LESS ALLOWED ON
WATER RIDERS**

IMAGE 082

FOUNTAIN DRINKS PEPSI DIET PEPSI PUNCH SIERRA MIST LEMONADE MOUNTAIN DEW ROOTBEER CHERRY PEPSI 16 OZ 1.25 24 OZ 1.75 32 OZ 2.25 SLUSH PUPPIES 2.50 BLUE RASPBERRY CHERRY BOTTLED WATER 1.25	 pepsi WESTON AQUATIC SNACKS	SOFT SERVE ICE CREAM CHOCOLATE VANILLA 4 TWIN CONE OR DISH 2.00 WAFFLE CONE 3.00 SUNDAES 3.75 STRAWBERRY CARAMEL 3.00 CHOCOLATE HOT FUDGE 3.75 ROOTBEER FLOAT 2.75 FLURRIES 4.00 COOKIE DOUGH M&M 3.00 BUTTERFINGER OREO 3.00 STRAWBERRY REESE'S 3.00 EXTRA TOPPING .50	ENTREES HOT DOG 2.50 4.00 CORN DOG 2.50 4.00 BRAT 3.25 4.75 CHILI DOG 3.00 4.50 CHILI Q&Z DOG 3.05 4.75 PIZZA SLICE 3.00 4.50 SNACKS QP CORN SH DOG 1.60 3.00 WETZEL 3.00 W CHEESE 3.50 JACKO'S 3.00 W CHILI 3.50 BANANA APPLE 2.50 M&M'S 1.00 COOKIES 1.25	 pepsi COMBO MEAL INCLUDES CHIPS & SOBA	HOMEMADE PIZZA CHEESE 12" 14" ONE TOPPING 3.00 5.00 MEAT LOVERS 6.00 8.00 TOPPING PEPPERONI SALISAGE CANADIAN BACON OREGO CHEESE FINES C' ONLY 12.00 PIZZA FAMILY DEAL INCLUDES 1 TOPPING 14" AND 4 1/2 LIT BE BEER \$8.00
---	---	--	---	--	--



IMAGE 083



IMAGE 084



IMAGE 085



IMAGE 086



IMAGE 087



IMAGE 088



IMAGE 089



IMAGE 090



IMAGE 091

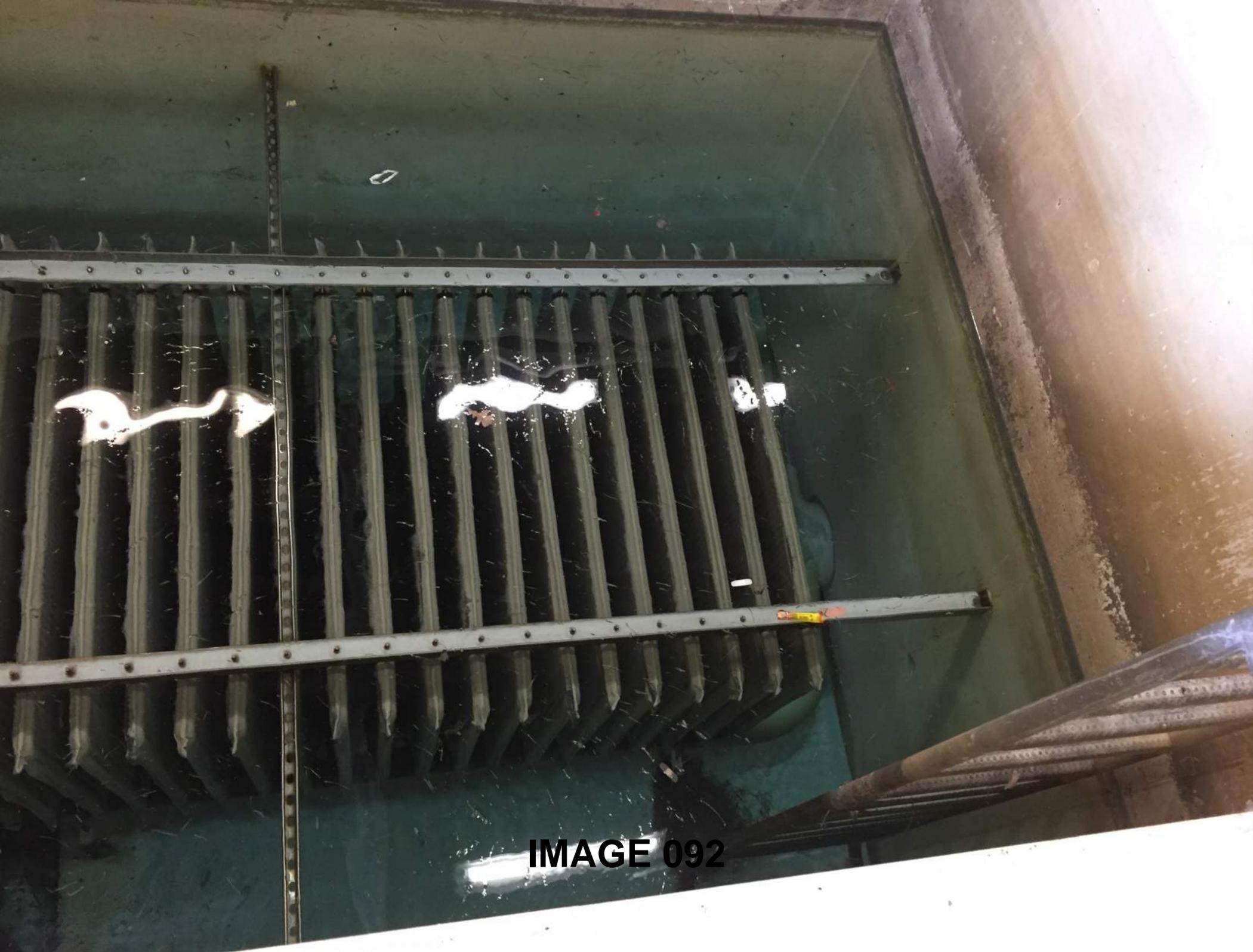


IMAGE 092

 Lochinvar



IMAGE 093





IMAGE 094



U.S. FILTER
U.S. FILTER / STRANCO, BRADLEY, IL 60915



Stranol[®] Systems⁴ Alarm

7.7 pH 582 HRR HIGH PPM

MODE: pH, HRR, PPM

SETTINGS: Set PPM, Set pH, Set HRR

CHEMICAL CONTROLLER

U.S. FILTER

IMAGE 095



CAUTION
LIQUID
CHLORINE

CAUTION
DUST HAZARD
WEAR YOUR RESPIRATOR

CHLORINE PUMP #2

DE SLURRY FLUSH
PUMP

IMAGE 096



**SAFETY
FIRST**

IF YOU GET CHEMICALS
ON YOUR BODY OR EYES
WASH THOROUGHLY
WITH PLENTY OF WATER.



**EYE WASH
STATION**

IMAGE 097



IMAGE 098



IMAGE 099



IMAGE 100

Chemicals should be within these ranges. If they are not, call me (715-581-2516) or Shown (715-846-9920) for help in correcting the situation.

Chlorine: 1.0 - 5.0

- Indicates a higher level of chlorine than what is recommended.
- If high, you should be able to smell it on the floor. If the pH is low, it will not be the chlorine gas.
- From pumping chlorine: 1.0 (low) or 5.0 (high). We can walk and smell what is in the air.

pH: 7.0 - 7.8

Alkalinity: 60-80

Calcium Hardness: 200-400

Other notes:

- Check the pH level right in the tank on the bottom right of the controller. This is a white button to check your pumping of chlorine in to the pool. If you see this, you need to be able to see and check the chlorine immediately!



IMAGE 101



IMAGE 102



IMAGE 103



IMAGE 104



IMAGE 105

NO DIVING

OFTOIM

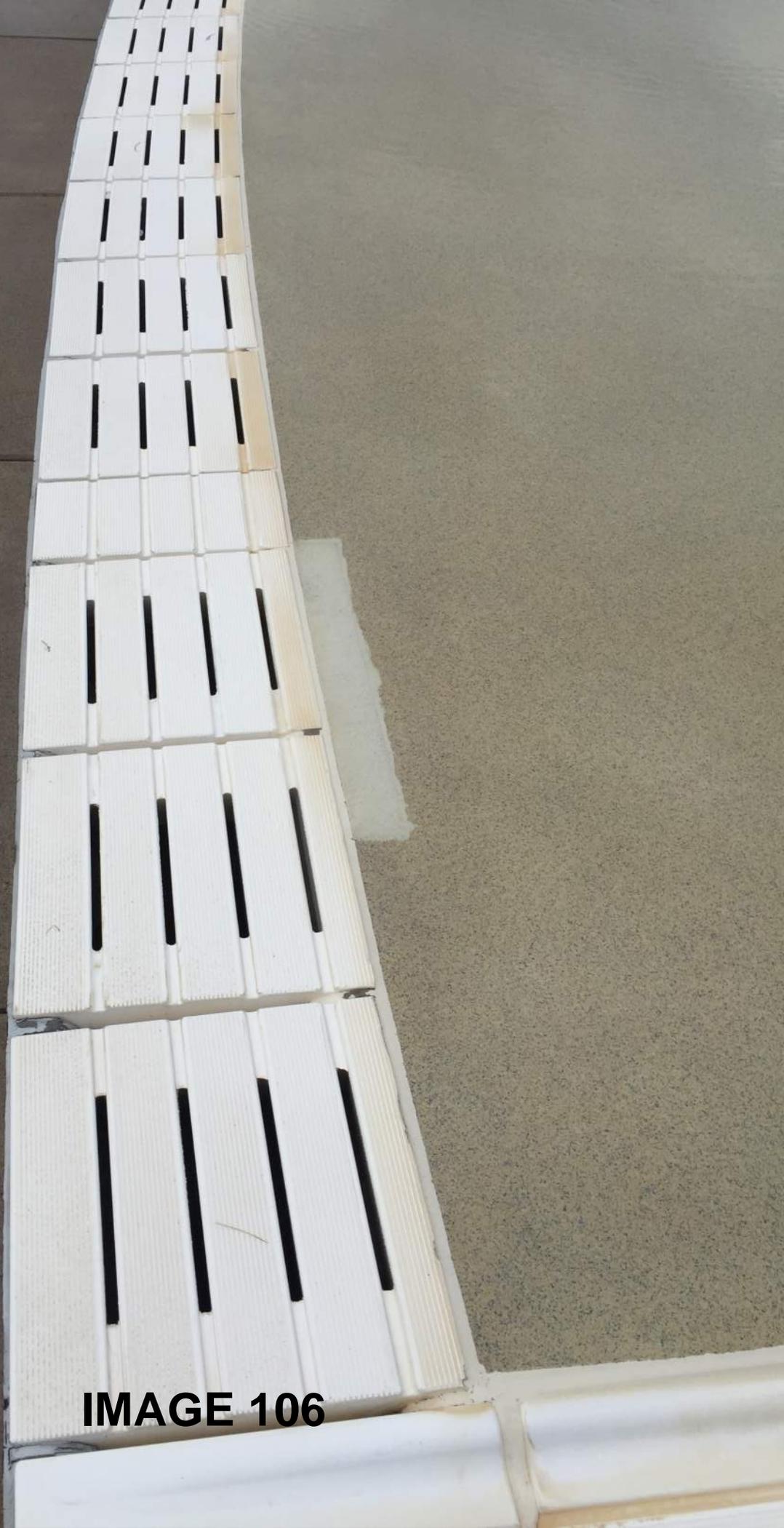


IMAGE 106



IMAGE 107



IMAGE 108



IMAGE 109



IMAGE 110



IMAGE 111

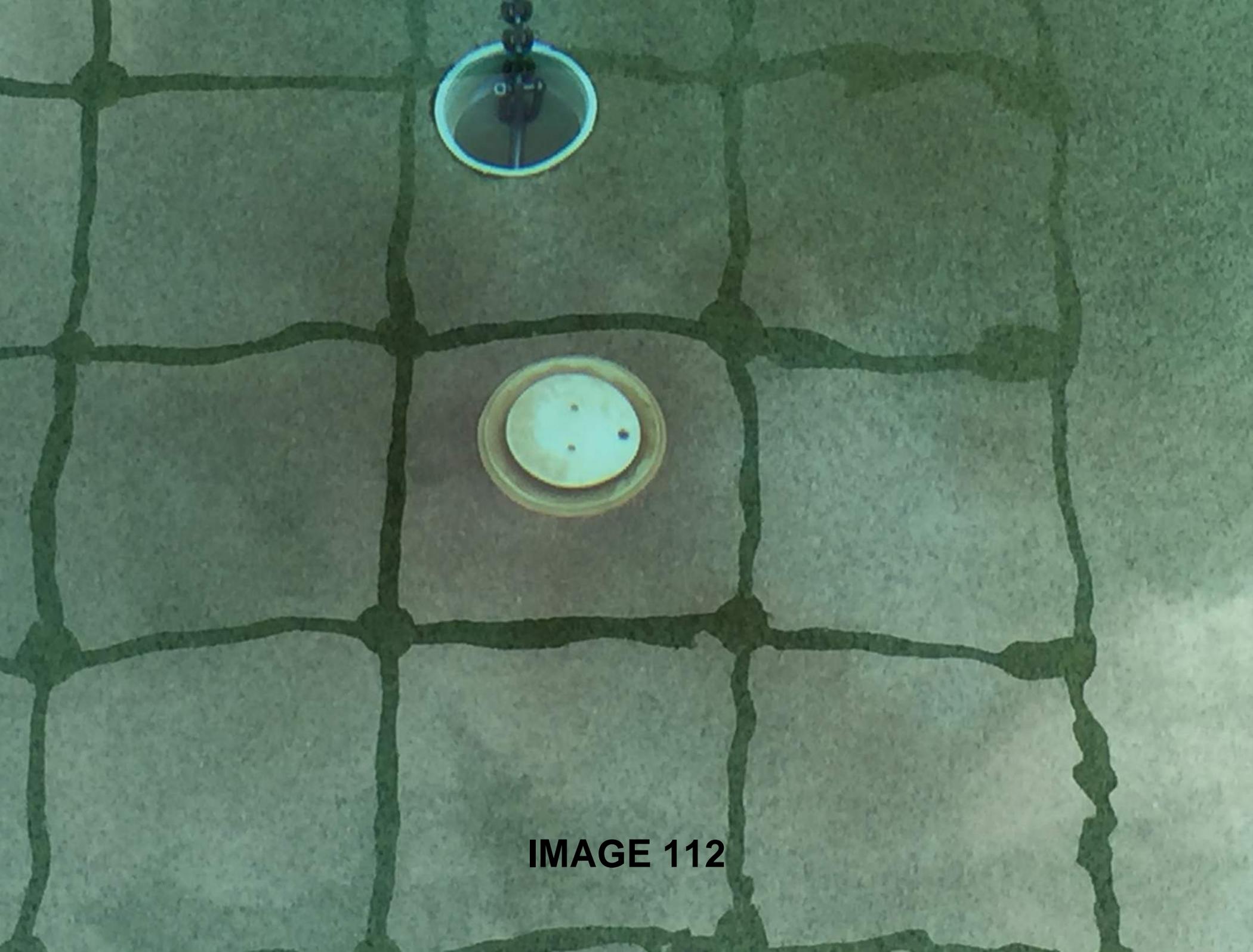


IMAGE 112



IMAGE 113



IMAGE 114



IMAGE 115



IMAGE 116



IMAGE 117



IMAGE 118



IMAGE 119



IMAGE 120



IMAGE 121



IMAGE 122



IMAGE 123



IMAGE 124



IMAGE 125



IMAGE 126

IMAGE 127

IMAGE 128

IMAGE 129



IMAGE 130



IMAGE 131

0 FT 0



IMAGE 132



NO

IMAGE 133



IMAGE 134



IMAGE 135

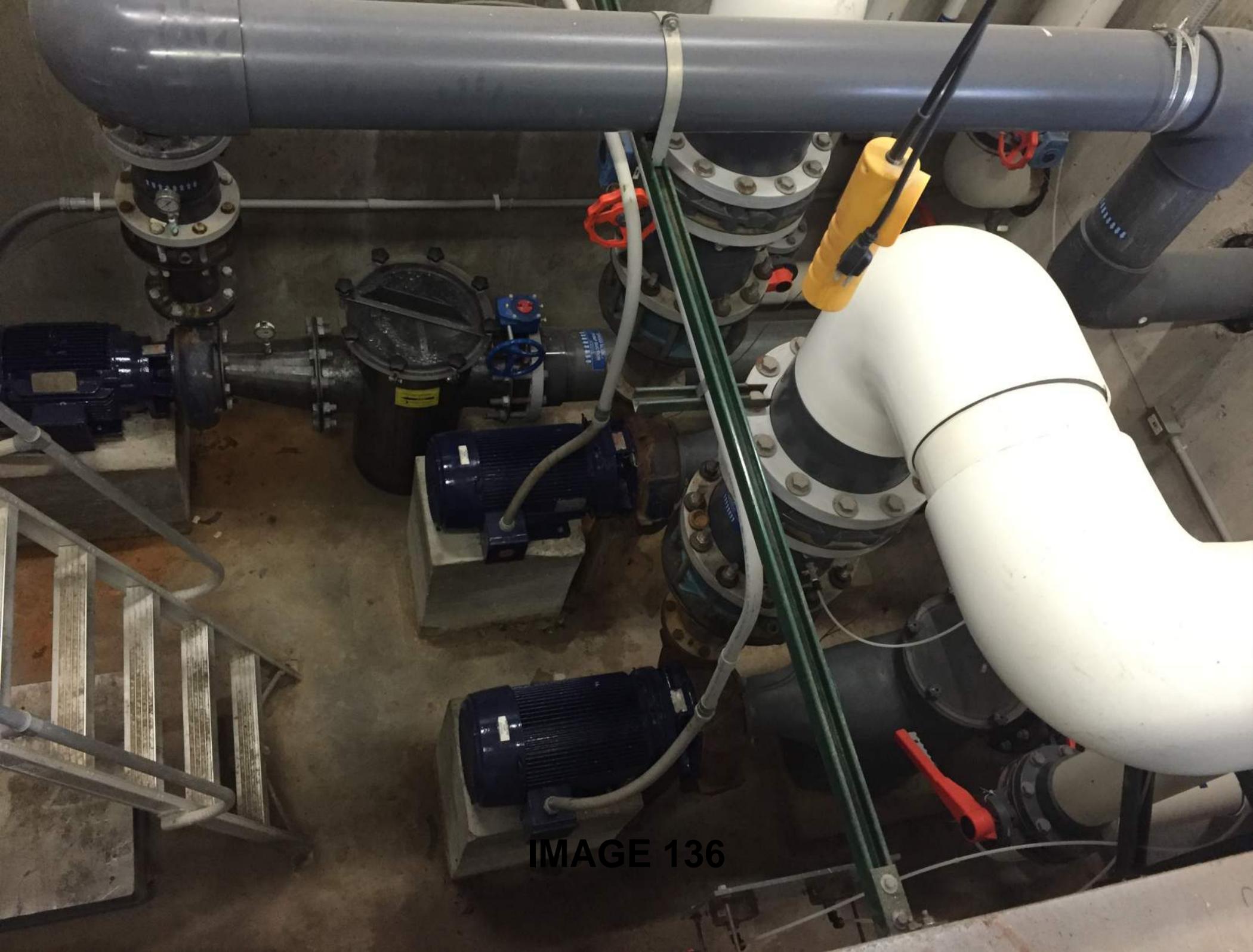


IMAGE 136



IMAGE 137



IMAGE 138



IMAGE 139



IMAGE 141



IMAGE 142



RECIRCULATION PUMP
VACCUME



RECIRCULATION PUMP
PRESSURE



ON PUMP
IT SWITCH



IMAGE 143



CHEMICAL CONTROLLER

neuman pools, inc
BEAVER DAM, WISCONSIN
920-885-3366, 800-472-1214

IMAGE 144



PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER: Corrosive. May cause severe skin irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS
 This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

PHYSICAL OR CHEMICAL HAZARDS
STRONG OXIDIZING AGENT. Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas that is irritating to eyes, lungs and mucous membranes.

STORAGE AND DISPOSAL
 Do not contaminate food or feed by storage, disposal or cleaning of equipment.
Storage: To avoid deterioration, store this product in a cool dry area, away from direct sunlight and heat. In case of spill, flood areas with large quantities of water. **Disposal:** If empty: Do not reuse this container; place in trash or offer for recycling if available. If partly filled: Call your local solid waste agency for disposal instructions. Never place undiluted unused product down any indoor or outdoor drain.

NSF
 Category Code: Q1
 NSF Registration No. 133782

WATER QUALITY
 ANSIS/NSF 60
 DRINKING WATER TREATMENT
 ADDITIVE
 -229-

SEE ADDITIONAL PRECAUTIONS ON SIDE PANEL.
 EPA Reg. No. 33981-20001-15265
 EPA Est. 15265-WI-1

Hypochlorite Solution,
 (Sodium Hypochlorite),
 8, UN1791, PG II

WALSAU CHEMICAL CORPORATION
 P.O. Box 953, Wausau, WI 54402-0953
 Toll Free: 800-850-8058 - Fax: 715-842-9059

HYPO-CHLOR

12.5% by weight SODIUM
 HYPOCHLORITE

KEEP OUT OF REACH OF CHILDREN

DANGER - DO NOT MIX WITH ACID SUCH AS MURIATIC ACID (HYDROCHLORIC ACID), SULFURIC ACID

DIRECTIONS FOR USE
 It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine.

SWIMMING POOL WATER DISINFECTION
 For a new pool or spring start-up, superchlorinate with 52-104 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.
 To maintain the pool, add manually or by a feeder device 11 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers. Every 7 days, or as necessary, superchlorinate the pool with 52-104 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check level of available chlorine with a test kit. Do not reenter pool until the chlorine residual is between 1.0 and 3.0 ppm. Re-entry into treated pool prohibited above levels of 4 ppm due to risk of bodily harm. At the end of the swimming pool season or when water is to be drained from the pool, chlorine must be allowed to dissipate from treated pool water before discharge. Do not chlorinate the pool within 24 hours prior to discharge.

FIRST AID
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Immediately rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
IF SWALLOWED: Immediately call poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

NOTE TO PHYSICIAN
 Probable mucosal damage may contraindicate the use of gastric lavage.

Net Contents:

Code:

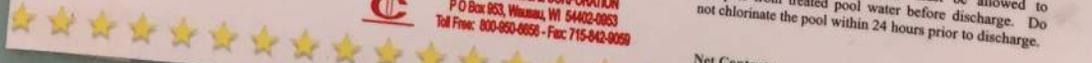




IMAGE 146



IMAGE 147



IMAGE 148

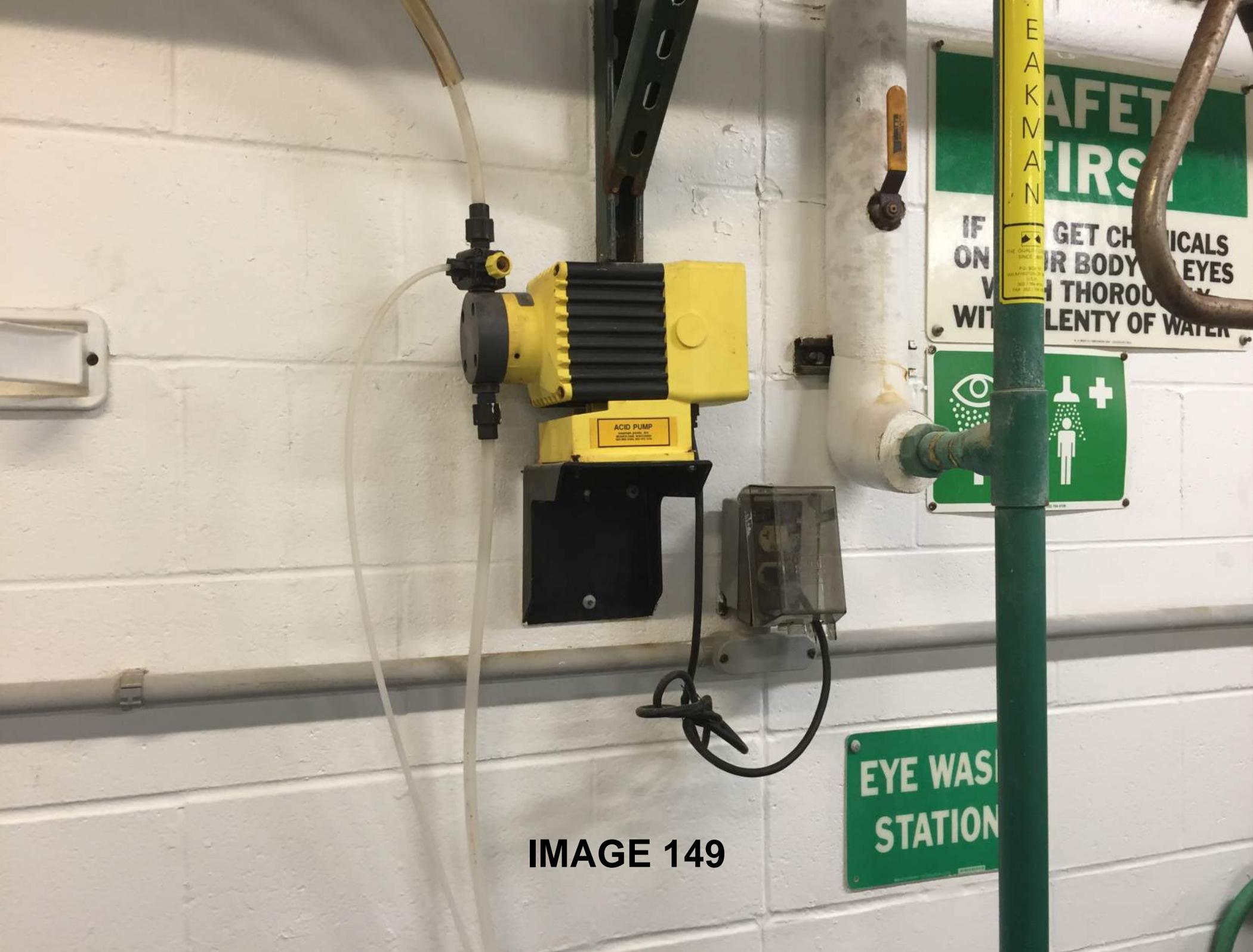


IMAGE 149



IMAGE 150

<p>FOUNTAIN DRINKS PEPSI DIET PEPSI PUNCH SIERRA MIST LEMONADE MOUNTAIN DEW ROOTBEER CHERRY PEPSI</p> <p>16 OZ 125 24 OZ 175 32 OZ 225</p> <p>SLUSH PUPPIES 250 BLUE RASPBERRY CHERRY BOTTLED WATER 125</p>	 <p>pepsi.</p> <p>WESTON AQUATIC SNACKS</p>	<p>SOFT SERVE ICE CREAM CHOCOLATE VANILLA & TWIST CONE OR DISH 200 WAFFLE CONE 300 SUNDAES 325 STRAWBERRY CARAMEL CHOCOLATE HOT FUDGE ROOTBEER FLOAT 275 FLURRIES 400 COOKIE DOUGH M&M BUTTERFINGER OREO STRAWBERRY REESSES EXTRA TOPPINGS 50</p>	<p>ENTREES</p> <table border="0"> <tr><td>HOT DOG</td><td>250</td><td>400</td></tr> <tr><td>CORN DOG</td><td>250</td><td>400</td></tr> <tr><td>BRAT</td><td>325</td><td>475</td></tr> <tr><td>CHILI DOG</td><td>300</td><td>450</td></tr> <tr><td>CHILI CHZ DOG</td><td>325</td><td>475</td></tr> <tr><td>PIZZA SLICE</td><td>300</td><td>450</td></tr> </table> <p>SNACKS</p> <table border="0"> <tr><td>POPCORN SM</td><td>150</td><td>LG 300</td></tr> <tr><td>PRETZEL</td><td>300</td><td>W CHEESE 350</td></tr> <tr><td>NACHOS</td><td>300</td><td>W CHILI 350</td></tr> <tr><td>CARAMEL APPLE</td><td></td><td>250</td></tr> <tr><td>PICKLE 100</td><td>COOKIES</td><td>125</td></tr> </table>	HOT DOG	250	400	CORN DOG	250	400	BRAT	325	475	CHILI DOG	300	450	CHILI CHZ DOG	325	475	PIZZA SLICE	300	450	POPCORN SM	150	LG 300	PRETZEL	300	W CHEESE 350	NACHOS	300	W CHILI 350	CARAMEL APPLE		250	PICKLE 100	COOKIES	125	 <p>pepsi.</p> <p>COMBO MEAL INCLUDES CHIPS & SODA</p>	<p>HOMEMADE PIZZA</p> <table border="0"> <tr><td>CHEESE</td><td>12"</td><td>14"</td></tr> <tr><td>ONE TOPPING</td><td>13.75</td><td>15.75</td></tr> <tr><td>MEAT LOVERS</td><td>15.00</td><td>17.00</td></tr> </table> <p>TOPPINGS PEPPERONI SAUSAGE CANADIAN BACON ONION</p> <p>CHEESE FRIES 12" ONLY 12.00 PIZZA FAMILY DEAL INCLUDES 1" TOPPING 14" AND 4-16 OZ SODAS \$18.00</p>	CHEESE	12"	14"	ONE TOPPING	13.75	15.75	MEAT LOVERS	15.00	17.00
HOT DOG	250	400																																													
CORN DOG	250	400																																													
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CHEESE	12"	14"																																													
ONE TOPPING	13.75	15.75																																													
MEAT LOVERS	15.00	17.00																																													



IMAGE 151



IMAGE 152



IMAGE 153



IMAGE 154



MEN
←

Late Season Joint Family Pass
\$85.00

Late Season Family Pass
\$65.00

Season Passes

WATERSLIDE
MIN. HEIGHT
48"

CHILDREN THAT ARE NOT POTTY TRAINED MUST WEAR SWIM DIAPERS. IF A CHILD IS FORCED TO CLOSE A POOL AND YOU ARE FOUND RESPONSIBLE, YOU MAY BE FINED \$500.00

Daily Admission

MAKE CHECKS PAYABLE
TO THE VILLAGE OF
WESTON

**SWIM DIAPERS
AVAILABLE
UPON REQUEST**

IMAGE 155



SURVEILLANCE
CAMERAS
IN USE

WOMEN
→

Emergency
Phone

Season
Passes

MAKE CHECKS PAYABLE
TO THE VILLAGE OF
WESTON

**SWIM DIAPERS
AVAILABLE
UPON REQUEST**

Season Passes

Water Wheel Chair

Swimming Lessons

WOMEN

IMAGE 156



IMAGE 157