



CI360™ | LAGOON WASTEWATER

WW • 6 STAGES • ONE SEQUENCE • BIOLOGY FIRST, CORRECTION SECOND

A lagoon does not fail on the day the complaint arrives. It fails quietly, over seasons - a blanket nobody surveyed, a strain left running through a temperature it cannot work in, a corrective product carried so long it became the program.



Lagoon Wastewater

Stabilize. Recover. Then correct.



Inside the lagoon program

One measured operating sequence from base biology through escalation - organized by the condition each stage addresses, the evidence that justifies it, and the controls that prove it is working.

01	Program overview Six stages, one measured sequence, and two disciplined escalation paths.	3	02	Base biology & seasonal match Establish the backbone, then let measured water temperature select the strain.	5
03	Capacity recovery Survey the blanket, recover working volume, and support oxygen where it is limited.	8	04	Upset recovery & escalation Rebuild after a true crash and reserve parameter correction for verified limits.	10
05	Collection system & diagnostics Stop grease, grit, blockages, odour, and unknown flow paths before the cell.	13	06	The Bench Calculate cell capacity, seasonal dose, cost-in-use, and product operating data.	16
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S1

Base biology

The continuous treatment backbone

S2

Seasonal match

Water temperature selects the strain

S3

Capacity recovery

Sludge reduction and oxygen support

S4

Upset recovery

Rebuild the biomass, then step back

S5

Collection system

Remove grease and grit upstream

S6

Escalation

Correct only the verified parameter

One sequence, six stages - and every product has one primary home

Six stages. One sequence. Two escalation paths.

CI360™ is a task-based program, not a product shelf. A lagoon program runs in order: establish base biology, match the biology to water temperature, recover the capacity sludge has taken - and only then escalate into upset recovery or a parameter-specific correction. Each stage has one job and one product lane. The program fails when the lanes blur: a corrective product carried as routine chemistry, a seasonal strain running through the wrong temperature band, or a base biology dose raised to compensate for a sludge problem it was never going to reach.

Base biology is not sludge recovery. Sludge recovery is not oxygen support. Oxygen support is not ammonia or COD correction. Those are distinct limiting conditions and they respond to different interventions. The single most valuable thing this program does is stop a municipality from answering every lagoon symptom with a heavier dose of the same pail.

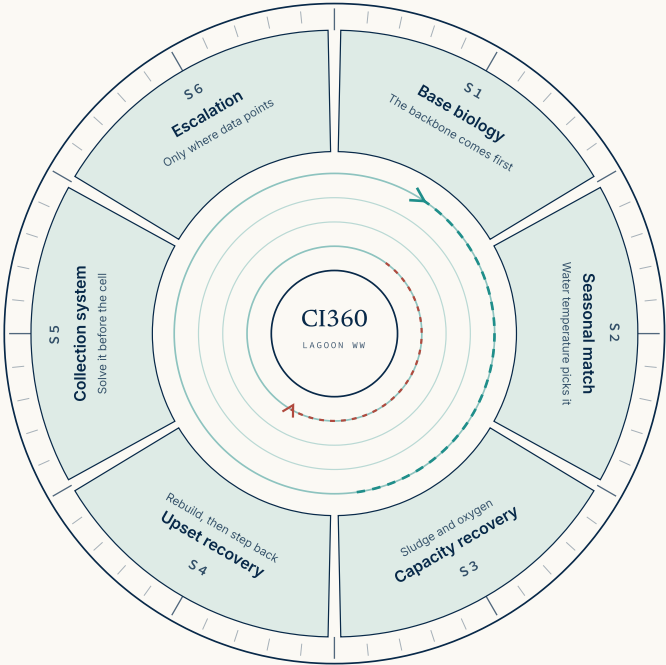
SIX STAGES AROUND ONE MEASURED TREATMENT SEQUENCE

S1	Base biology The backbone every program stands on	000–060°
S2	Seasonal match Measured water temperature picks the strain	060–120°
S3	Capacity recovery Sludge reduction and oxygen release	120–180°
S4	Upset recovery Rebuild the biomass, then step back	180–240°
S5	Collection system Grease and grit stopped before the cell	240–300°
S6	Escalation Parameter lanes and diagnostics	300–360°

- SELECTED STAGE
- OTHER STAGES
- DASHED INNER ARC = THE MAINTENANCE LOOP
- RED ARC = ESCALATE ON DATA, NOT ON HABIT
- LAGOON & LIFT STATION
- BIO-ACCELERATORS
- SEWER INFRASTRUCTURE
- = CATALOGUE SECTION OF A LINKED PRODUCT

THE OPERATING ROUTE

1 Assess Water temperature, sludge depth, effluent trend, collection-system load	2 Assign One primary product lane for each stage - no corrective product left in the base lane	3 Apply By label rate, on measured surface area, logged with the temperature reading	4 Verify Survey, effluent results, odour reports, and cost against working volume
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FAILURE MODE 01

One product answering every symptom

Odour, sludge, ammonia and a spring crash are four different failures. When a single pail is dosed at every one of them, three of the four go untreated and the invoice grows anyway. Diagnose the limiting condition before you open anything.

FAILURE MODE 02

Sludge that was never surveyed

The blanket is the only lagoon problem that turns into a capital problem. It builds silently, takes working volume off the top of the cell, and shortens retention long before anyone connects it to effluent quality. A cell without an annual survey is being managed on guesswork.

FAILURE MODE 03

Seasonal strain left in the wrong band

Warm-water strains stop working below their band and cold-water strains are wasted above it. The published bands are narrow and specific. Switching on the calendar instead of on a thermometer costs a full season of treatment.

FAILURE MODE 04

Recovery chemistry that became routine

Upset blends are a course with a start and a stop. Carried month after month they mask a base biology that never re-established, and the cell never returns to a stable, self-sustaining state.

FAILURE MODE 05

Collection-system load treated in the cell

Grease from an untreated wet well and grit from an unflushed main arrive in the lagoon as extra load the cell was never sized for. Chemistry at the cell is the most expensive place to solve a problem that started three lifts upstream.

THE PRIMARY-HOME RULE

SIX STAGES, ONE SYSTEM

- Base biology runs continuously and is never the escalation - it is what everything else is measured against.
- The seasonal layer is selected by a thermometer reading, and only one strain runs at a time.
- Capacity recovery is placed on the deposit, not broadcast over the surface.
- Oxygen release buys the biology time inside the blanket; it does not replace aeration or fix loading.
- Upset recovery is a course with a defined end, after which the cell returns to base biology.
- Collection-system chemistry protects the cell by removing load before it arrives.

PLANNING MISTAKES THIS PROGRAM AVOIDS

- Raising the base biology dose to catch up on a problem base biology cannot reach.
- Running warm-water and cold-water strains together so nobody has to read a thermometer.
- Budgeting a dredge before the biological reduction program has been given a measured season.
- Treating chronic odour with more oxygen release instead of reviewing the loading that drove oxygen down.
- Buying by the pail instead of by the working cubic metre, and never comparing the two.

SAFETY FLOOR

Follow site SOPs, current SDS, product labels, PPE requirements, and applicable provincial and federal regulations. **Never combine caustic line openers with acid products, and never mix an oxygen-release granular with any other chemistry in a container or a hopper.** Lagoon and lift station work is confined-space and drowning-risk work: berms, wet wells, and access hatches all require the site's own entry and fall-protection procedures. Discharge, dosing, and dye-tracing activity may be conditions of your approval to operate - confirm before you change the program.

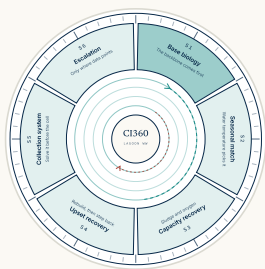
STRENGTH IS NOT A STRATEGY

Do not answer every lagoon complaint by increasing the dose. Odour is usually dissolved oxygen. Rising ammonia in autumn is usually temperature. Slipping BOD on a cell that used to hold it is usually retention time lost to sludge. A heavier dose of base biology corrects none of the three, and it will not tell you which one you have.

Working from a pail count, not a cell survey?

The Bench turns cell dimensions and a sludge reading into working volume, retention time, seasonal quantity, and cost per thousand cubic metres - on your own delivered cost.

[See The Bench worksheets](#)



SECTION 02 • STAGE S1-S2 • BASE BIOLOGY & SEASONAL MATCH

Base Biology & Seasonal Match

The continuous backbone every lagoon program stands on, and the strain the water temperature actually selects.

RESULT

A stable microbial backbone with one seasonal strain running at a time

“Biology first, correction second. Nothing downstream of this stage works properly if the backbone was never established.”

This is the stage that decides whether the rest of the program is treatment or firefighting. A lagoon with a stable microbial backbone absorbs load variation, recovers faster from a shock, and holds its numbers through a shoulder season. A lagoon without one produces a new symptom every few weeks, and every symptom gets answered with a different pail.

The seasonal layer sits on top of the backbone, and it is selected by a thermometer rather than a calendar. The published bands are narrow and they do not overlap: cold-water support holds activity between 3 °C and 15 °C, high-temperature support is built for 25.5 °C and above. Between the two bands there is no seasonal product - hold base biology and watch the trend.

THE BIOLOGY LOGIC

1 Establish the base Continuous, low-intensity, at the influent before anything corrective	2 Read the water Measured cell temperature, not the date on the calendar	3 Select one strain Cold band or warm band · never both at once	4 Switch ahead of the turn Change before ammonia moves, not after it does	5 Escalate only on data If the base is stable and the numbers still slip, the limit is elsewhere
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THE CHEMISTRY CABINET • COLOUR DOT = THE CATALOGUE SECTION EACH PRODUCT LIVES IN • PRODUCT NAMES LINK TO THE CURRENT CATALOGUE PAGE

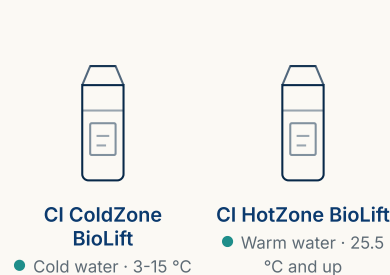
BASE BIOLOGY - THE CONTINUOUS LAYER

Liquid backbone at the influent, dry bacteria where a solid feed suits the site, and a biostimulant for loads that swing.

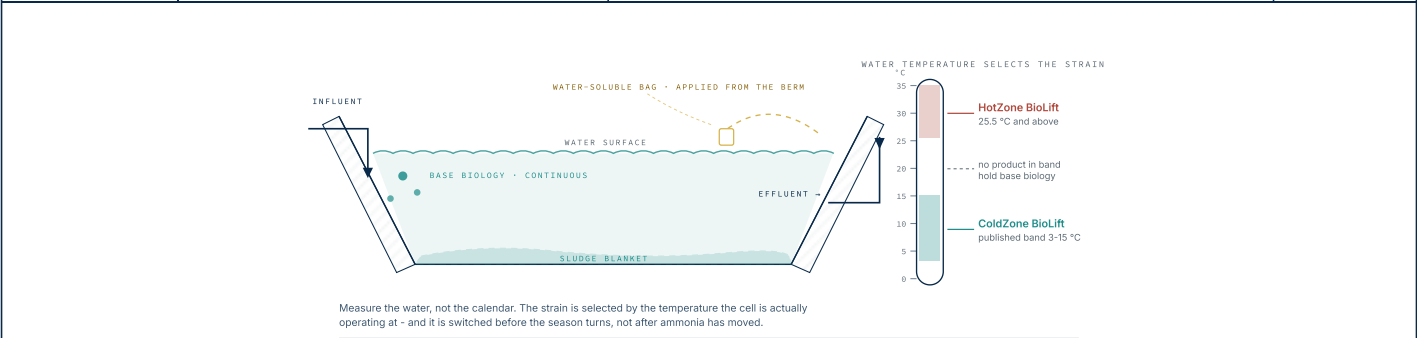


SEASONAL LAYER - PICK ONE BY THERMOMETER

Two published temperature bands, two strains, water-soluble bags applied from the berm.



SHEET WW-02	STAGE S1-S2 · Base biology & seasonal	STANDARD Backbone continuous · one strain in band · every dose logged with a temperature	PRODUCTS 5
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TASK / CONDITION · BEST-FIT PRODUCTS	WHY IT BELONGS · OPERATOR NOTE
1 Base biological maintenance ● CI Digester BioEnzyme	Concentrated blend of facultative aerobic and anaerobic bacteria with specialised enzymes; digests fats, oils, grease, proteins, starches and cellulose across lagoons, aerated basins, septic systems, traps and drains. This is a steady feed, not a shock. Pulsing a heavy dose to catch up wastes product and still lags the problem - if treatment is slipping, identify the failure mode before changing the base rate.
2 Dry feed where liquid does not suit the site ● CI Chemzyme Dry Bacteria Strain	Concentrated dry biological treatment with selected bacterial strains and enzymes; shelf-stable, colonises rapidly on contact, and suppresses anaerobic odour. Safe for lift stations, grease traps, septic systems and lagoons. The practical difference is handling, not chemistry: dry product ships and stores better on a remote site and can be dosed by hand at a lift station without a pump. Use it for reseedling as well as maintenance.
3 Loading that swings faster than the biology adapts ● CI Excelsior Advanced BioEnzyme	Advanced biostimulant built for petroleum-refining wastewater and soil rehabilitation - hydrocarbons, glycols, amines, sulfides and heavy metals, the profile that drives nitrification failure. Accelerates COD breakdown and stabilises biology through micronutrient delivery. This is the industrial-duty lane, not a general strengthener. Reach for it where the load profile is genuinely industrial or hydrocarbon-linked; on a municipal cell with a stable influent it is the wrong tool.
4 Cold water and shoulder seasons ● CI ColdZone BioLift	Published band is 3 °C to 15 °C. Standard support is 0.5 lb per acre per day; the ammonia setting is 2 lb per acre per day. Applied in water-soluble bags thrown from the shoreline - no boat, no equipment. The two published rates are the whole seasonal decision. Run the standard rate as the cold-season baseline and step to the ammonia setting when the effluent trend, not the calendar, says so.
5 Warm-water and thermally loaded cells ● CI HotZone BioLift	Built for 78 °F (25.5 °C) and above - vitamins, biostimulants, biocatalysts and facultative strains that hold metabolic function in low-oxygen, high-temperature water. Published pairing with oxygen release at 20-50 lb per acre. Never run this alongside the cold-water strain. One thermometer reading picks one strain; two strains competing in the same cell means neither establishes and the season is lost.
6 The gap between the bands	Between 15 °C and 25.5 °C neither seasonal product is inside its published band. Hold base biology and watch the trend. This is the part of the year where operators are most tempted to keep the last strain running - and where doing so quietly wastes a month of product.

The thermometer picks the strain. The calendar does not get a vote.

COLD-WATER
STRAIN WHEN...

- Measured cell temperature sits between 3 °C and 15 °C.
- Spring thaw, autumn transition, or a full Prairie cold season.
- Ammonia is trending up and the water is cold - step to the published 2 lb/acre setting.
- Ice-off has happened but the cell has not warmed with the air.



WARM-WATER
STRAIN WHEN...

- Measured cell temperature is 25.5 °C or above.
- Seasonal peak loading or a thermally influenced industrial cell.
- Oxygen is low and temperature is high - the pairing case for oxygen release.
- Standard strains have visibly slowed in warm, low-oxygen water.

SIGNS THIS STAGE IS OVER-RUN

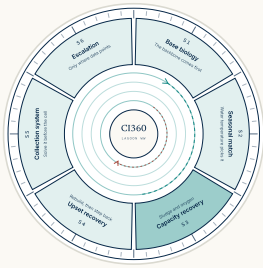
The base dose has been raised twice in a year with no change in influent or flow. Both seasonal strains are on the shelf and both are being applied. A biostimulant is being fed to a stable municipal cell to "help." Product spend climbs while the effluent trend stays flat.

Base → measure → strain → hold → escalate.



SIGNS THIS STAGE IS UNDER-BUILT

Every season starts from a biological crash rather than from a working population. Nobody can state the current cell temperature without going to look. The seasonal switch happens on a date that was set years ago. Corrective products are ordered more often than the base product is.



SECTION 03 · STAGE S3 · CAPACITY RECOVERY

Capacity Recovery - Sludge & Oxygen

The blanket is the only lagoon problem that becomes a capital problem. This is the stage that keeps it off the capital plan.

RESULT

Working volume held, retention time protected, dredging deferred

“Sludge is not a housekeeping issue. It is working volume you already paid for and are no longer using.”

Every centimetre of blanket takes volume off the bottom of the cell and time off the retention the approval was written around. That loss does not announce itself - it shows up first as effluent numbers drifting on a cell that used to hold them, then as odour, and finally as a dredging quotation nobody budgeted. The whole point of this stage is to intervene while it is still chemistry rather than earthworks.

Two products, two mechanisms, and they work together. Biological spikes place a concentrated population of bacteria, enzymes and nutrients directly into the deposit rather than broadcasting them across the surface. Granular oxygen release settles through the column and liberates oxygen inside the compacted mass, opening aerated channels so that digestion can continue where it had gone anaerobic. Neither one substitutes for the other, and neither one substitutes for a survey.

THE RECOVERY LOGIC

1 Survey the blanket Fixed transects · same points · same time each year	2 Convert to volume Depth is a reading; volume lost is the argument	3 Place, do not broadcast Product goes onto the deposit, spread across the cell	4 Open the mass Oxygen release where the deposit has gone anaerobic	5 Re-survey before deciding Never quote a dredge against a blanket nobody has re-measured
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THE CHEMISTRY CABINET

SLUDGE REDUCTION - PLACED ON THE DEPOSIT

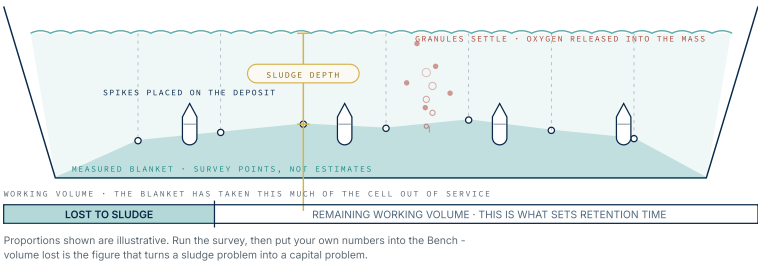
Pre-formed spikes that dissolve into the blanket and deliver the population where the solids actually are.



OXYGEN RELEASE - INTO THE COMPACTED MASS

Granular peroxide chemistry that settles through the column and liberates oxygen inside the deposit.



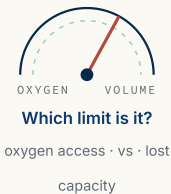
SHEET WW-03	STAGE S3 · Capacity recovery	STANDARD Surveyed depth · placed product · volume trend reported annually	PRODUCTS 3 REF.
			
TASK / CONDITION · BEST-FIT PRODUCTS		WHY IT BELONGS · OPERATOR NOTE	
1	Sludge survey before any product decision	Average blanket depth across fixed transects, converted to volume and to percentage of design capacity. Depth alone does not carry a budget conversation. Volume lost does, and so does the number of retention days it has taken. Put both in the annual report.	
2	Targeted sludge reduction ● CI Sludge Sharks	Pre-formed biological spikes that dissolve on the blanket and release high concentrations of specialised bacteria, enzymes and nutrients directly into the sludge layer - fats, oils, grease and cellulose included. Placement is the whole mechanism. Product tipped over one corner of the berm treats one corner. Distribute across the cell and record where each spike went.	
3	Extended digestion support ● CI Chemzyme Dry Bacteria Strain	Concentrated dry bacterial and enzyme treatment that colonises rapidly and suppresses anaerobic odour, used alongside the spike program. This is the maintenance half of the recovery lane - it keeps the population up between placements rather than doing the heavy reduction itself.	
4	Anaerobic, compacted deposit ● CI OxyBoost BioAccelerator	Granular peroxide-based oxygen release. Granules settle through the water column and dissolve slowly at the bottom, liberating oxygen into the organic mass, disrupting anaerobic zones and suppressing hydrogen sulfide and methane odour. Published pairing rate is 20-50 lb per acre alongside the warm-water strain. Oxygen release buys the biology time inside the deposit - it does not correct the loading or the aeration shortfall that drove oxygen down.	
5	The dredging decision	A biological reduction program and a mechanical dredge solve the same problem on different timescales and different budget lines. Do not run a dredge through the middle of a biological program without re-surveying first - you will pay to remove solids the biology had already reduced. Take the comparison to the Bench and put real numbers on both sides.	

THE CAPACITY DECISION

Odour is a symptom. Volume loss is the problem. What a working recovery stage buys you.

TREAT IT AS OXYGEN WHEN...

- Odour appears at the berm before any change in effluent numbers.
- Complaints follow warm, still weather rather than the sludge trend.
- The blanket is within band but the deposit has gone anaerobic.
- Aeration is running and the odour is localised, not cell-wide.

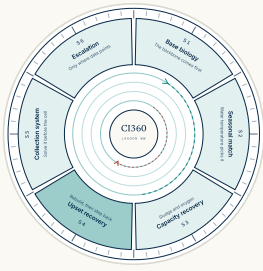


TREAT IT AS CAPACITY WHEN...

- Surveys have risen two years running on the same transects.
- Retention time has measurably shortened against the design figure.
- BOD and TSS are creeping on a cell that used to hold them.
- A dredging quotation has appeared in a capital discussion.

DO NOT BROADCAST PLACED PRODUCT

Spikes and granular oxygen release are designed to reach the deposit. Scattered across the surface from a single access point they dissolve in the water column and treat the part of the cell nobody was complaining about. Distribution across the cell is not a refinement - it is the mechanism.



SECTION 04 • STAGE S4 & S6 • UPSET RECOVERY AND ESCALATION

Upset Recovery & Escalation

Rebuilding a biomass that has crashed - and the discipline of escalating only where the data actually points.

RESULT

One recovery course, a stable cell, and a documented reason for every escalation

“Recovery is a course, not a habit. Run it, confirm the cell is stable, then step back to base biology.”

After a toxic hit, a washout, a spring crash, or on a new cell coming online, there is no biomass to treat with. Dosing base biology harder at that point is dosing into a cell that cannot yet hold a population. What the cell needs is a fast-growing heterotrophic population that reproduces quickly and - critically - flocculates well enough to settle and stay rather than washing straight out at the effluent structure.

Escalation is the other half of this stage, and it is mostly a discipline rather than a product. Ammonia, COD, algae and clarity are separate limiting conditions, and each one needs to be confirmed as the actual limit before anything is dosed against it. Where the catalogue does not currently carry a lane, this page says so instead of pointing you at the nearest available pail.

THE RECOVERY LOGIC

1 Confirm the crash Slowed is not crashed - they get different answers	2 Find the cause Toxic load, washout, thaw, or a new cell coming online	3 Run one course Augment, watch the floc form, watch it settle	4 Confirm stability Effluent trend, not a single good sample	5 Step back down Return to base biology - stacked recovery blends delay stability
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THE CHEMISTRY CABINET

RAPID REBUILD - MUNICIPAL CELLS

Fast-growing heterotrophic bacteria with bio-stimulants, selected for flocs that settle and stay in the system.



CI Respond Lagoon Boost

● Upset and start-up

INDUSTRIAL AND HYDROCARBON-LINKED UPSETS

Where the upset traces to hydrocarbons, glycols, amines or sulfides rather than to hydraulic load.



CI Excelsior Advanced BioEnzyme

● Biostimulant support

SHEET WW-04	STAGE S4 · Upset recovery	STANDARD One course · floc that settles · documented return to base biology	PRODUCTS 2 CORE
TREATMENT CAPACITY ACTIVE CRASHED UPSET toxic hit · washout · thaw AUGMENT recovery course starts REBUILD floc forms · settles · stays STEP-DOWN back to base biology A COURSE, NOT A HABIT NORMAL OPERATING BAND Shape is illustrative of the mechanism, not a predicted timeline. What matters operationally is the sequence: confirm the crash, run one augmentation course, watch the floc settle rather than wash out, then step back down.			
TASK / CONDITION · BEST-FIT PRODUCTS		WHY IT BELONGS · OPERATOR NOTE	
1	Distinguishing a crash from a slowdown	A cold-water slowdown recovers when the strain is matched to temperature. A crash does not - the population itself is gone. This is the most consequential call in the section. Treating a seasonal slowdown as a crash wastes a recovery course; treating a crash as a slowdown wastes a season.	
2	Post-upset and start-up rebuild ● CI Respond Lagoon Boost	Fast-growing heterotrophic bacteria supported by bio-stimulants that accelerate reproduction and metabolic activity, for biological upset, overload, toxic shock, or bringing a new system online. The published differentiator is flocculation: strains selected to form bio-flocs that settle and stay in the system rather than washing out. On a lagoon with short retention, that property is the difference between a rebuild and an expensive dose of drift.	
3	Hydrocarbon-linked and industrial upsets ● CI Excelsior Advanced BioEnzyme	Biostimulant engineered for refinery wastewater and soil rehabilitation - petroleum hydrocarbons, glycols, amines, sulfides and heavy metals, the contaminant profile that causes nitrification failure and operational upset. Match the tool to the cause. If the upset traces to an industrial discharge rather than to hydraulic load or temperature, a general municipal rebuild will not address what caused it.	
4	Ammonia pressure ● CI ColdZone BioLift	Where the driver is cold water, the published lane is the cold-water strain at its 2 lb per acre per day ammonia setting. Confirm ammonia is the actual limiting condition first. Rising ammonia in cold water is a temperature signal before it is a dosing signal - the answer is usually the right strain, not a heavier one.	
5	COD, algae, and clarity pressure	Named in the source material as separate lanes. See the catalogue gaps below - no current Chem International record supports them. Where a lane is not served, say so. Substituting the nearest available biological product for a parameter-specific correction produces a cost with no mechanism behind it.	
6	Return to base biology ● CI Digester BioEnzyme	A recovery course ends. The cell goes back onto the continuous base layer once the effluent trend confirms stability. Stacking recovery blends on top of each other delays the return to a stable, self-sustaining cell and makes the next upset harder to read. One course, then step down.	

ESCALATION LANES WITH NO CATALOGUE RECORD · named in the source material, not currently carried – flagged rather than substituted

UNSERVED LANE

Ammonia-specific bioaugmentation

Named in the source material as BioRemove AM. No product of that name appears in the 2026 source catalogue. The published cold-water ammonia lane on this page is CI ColdZone BioLift at its 2 lb/acre/day setting.

UNSERVED LANE

COD-specific correction

Named in the source material as BioRemove COD, COD LT and COD SF for general, low-temperature and shock-load conditions. None of the three appears in the 2026 source catalogue, so none is placed on this page.

UNSERVED LANE

Algae and clarity control

Named in the source material as CI Algaecide & Pond Clarifier – a chelated copper product. No catalogue record exists. Algae is currently an unserved lane in this program.

UNSERVED LANE

Clarifier support

Named in the source material as CI BlueCrystal. No catalogue record exists. Where clarity is the presenting issue, the served lanes are sludge reduction and oxygen release, not a clarifier.

WHY THESE ARE SHOWN RATHER THAN FILLED

Four lanes appear in the program material with no product behind them: BioRemove AM · no catalogue record BioRemove COD / LT / SF · no catalogue record CI Algaecide & Pond Clarifier · no catalogue record CI BlueCrystal · no catalogue record

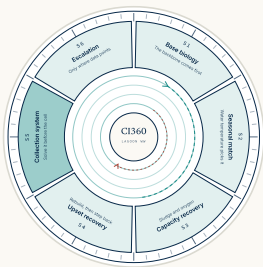
Naming a lane the catalogue cannot supply is a specification error that shows up on site, not on the page. Where a limit falls into one of these lanes, treat it as a sourcing conversation rather than a product substitution.

DO NOT STACK RECOVERY BLENDS

Running a second recovery product on top of the first does not compound the rebuild. It obscures which intervention is working, extends the period the cell spends outside its normal operating band, and makes the next event impossible to diagnose against a baseline. One course, confirmed stable, then step down.

CONFIRM THE LIMIT BEFORE ESCALATING

Ammonia, COD, algae and clarity are separate limiting conditions with separate mechanisms. Escalating on a hunch produces a cost with no measurable result and, worse, leaves the actual limit untouched for another season. Escalate on a measured trend, and write down what triggered it.



SECTION 05 • STAGE S5 • COLLECTION SYSTEM

Collection System & Diagnostics

Lift stations, wet wells, gravity mains, and the tracer work that tells you where the flow is actually going.

RESULT

Load intercepted upstream and a flow path confirmed rather than assumed

“Grease and grit stopped in the collection system never reach the cell. Everything solved upstream is capacity you do not have to buy back.”

The lagoon inherits whatever the collection system sends it. Fats and oils that mat a wet well eventually arrive as load the cell was never sized for; silt and sand that reduce a main's hydraulic capacity arrive as surcharge and backup risk long before they arrive as a treatment problem. Chemistry at the cell is the most expensive place to solve a problem that started three lifts upstream.

Two grease approaches share this lane and they are not interchangeable. A floating citrus degreaser breaks an established cap and holds an odour-blocking layer at the waterline. An automated bacterial block dissolves continuously beneath the incoming flow and stops the cap re-forming. Break a heavy cap first, then let the block hold it - running a solvent shock into a well that is relying on the block strips the culture along with the grease.

THE COLLECTION LOGIC

1 Inspect the well Cap thickness, waterline banding, float and probe condition	2 Break what is there Floating degreaser on an established cap	3 Hold it automatically Bacterial block beneath the incoming flow line	4 Flush the mains Dispersant inside a scheduled flushing program, not after a backup	5 Prove the flow path Trace it when the network drawing and the reality disagree
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THE CHEMISTRY CABINET

GREASE - BREAK IT, THEN HOLD IT

Floating citrus chemistry for an established cap; an automated block to stop it re-forming.



CI Biotrap Grease Trap Renovator

● Floating d-Limonene



CI Grease D Solve Plus

● Floating degreaser - 50%



CI BioLink Lift Station

● Automated bacterial block



CI Silt & Sand Flush

● Polymer dispersant



CI 444 Attack Sewer Solvent

● Granular line opener



CI Lemon Fury

● Odour counteractant



CI Sewer Tracer Dye

● Flow and leak tracing

MAINS - DEPOSITS, BLOCKAGE, ODOUR

Dispersant inside a scheduled flushing program, a granular opener for a hard blockage, and odour control that does not harm the biology.

DIAGNOSTICS

Flow-time studies, leak detection, overflow analysis, and investigation work.

SHEET WW-05	STAGE S5 · Collection system	STANDARD Cap broken then held · mains flushed on schedule · flow path confirmed	PRODUCTS 7
COLLECTION GRASS GRAVITY MAIN · REDUCED HYDRAULIC CAPACITY SILT · SAND · SEDIMENT TRACER DYE · FLOW PATH AND TRAVEL TIME CONFIRMED, NOT ASSUMED LIFT STATION BACTERIAL BLOCK FOG CAP FORCE MAIN LEVEL SWING LAGOON CELL Grease and grit intercepted in the collection system never reach the cell. Everything solved upstream of the lagoon is treatment capacity you do not have to buy back later.			
TASK / CONDITION · BEST-FIT PRODUCTS		WHY IT BELONGS · OPERATOR NOTE	
1	Established grease cap at the waterline ● CI Biotrap Grease Trap Renovator ● CI Grease D Solve Plus	A 100% d-Limonene non-emulsifying floating degreaser that holds a persistent odour-blocking layer and strips grease from walls on each level cycle, with a built-in red indicator dye that signals when it is spent; and a 50% d-Limonene alternative that will not disrupt bacterial action in septic systems. The non-emulsifying behaviour is the point - it lifts grease at the surface rather than driving it deeper into the system, so what you remove is actually gone rather than relocated.	
2	Keeping the cap from re-forming ● CI BioLink Lift Station	Dual-action bacterial block - a pseudomonas core for immediate impact and a bacillus outer shell for sustained release. Hung beneath the incoming flow line, it dissolves completely over 2 to 10 weeks depending on daily volume across a 50,000 to 300,000 GPD band. Set the replacement interval from your own measured daily volume, not from the last site's interval. A block that has fully dissolved two weeks before anyone notices is two weeks of untreated grease.	
3	Solvent and block together	Solvent shock strips the grease and takes the block's culture with it. Sequence, do not stack: break a heavy cap with the floating degreaser first, then let the block hold it. Running both hard at once buys one result and pays for two.	
4	Silt, sand and sediment in the mains ● CI Silt & Sand Flush	Highly charged polymer dispersant that penetrates compacted deposits and separates the solids so they move freely during standard flushing or jetting - storm and sanitary mains, lift stations and retention basins. This belongs inside a scheduled inspection and flushing program. Used reactively after a backup it is remediation; used on schedule it is the reason there was no backup.	
5	Hard organic blockage ● CI 444 Attack Sewer Solvent	Non-acidic granular caustic alkali activated with fine aluminum needles - a vigorous exothermic reaction on contact with water breaks down fats, oils, hair, cellulose, protein debris and hard water scale. NSF Registered (L1). This is emergency chemistry with real handling risk. Full PPE, never in combination with acid or any other opener, and never as a substitute for the flushing program that would have prevented the blockage.	
6	Odour at mains, tanks and collection points ● CI Lemon Fury	Solvent-free liquid odour counteractant that neutralises hydrogen sulfide, ammonia and decomposition odours at the source without harming the microbial activity treatment depends on. Water-soluble for spray, pour or injection. The catalogue record classifies this as an odour counteractant, not a line opener - worth stating plainly because it is often mis-shelved with the drain products. It manages the complaint; it does not treat the cause.	
7	Unverified flow path or suspected leak ● CI Sewer Tracer Dye	Biodegradable fluorescent tracing dye in a deliberately non-natural colour, harmless to wildlife at proper concentrations and without effect on treatment processes. Used for flow-time studies, volume analysis, leak detection and overflow investigation. Notify before you trace. A visible dye appearing in a ditch or a creek without warning generates a public complaint faster than any odour event, and the colour was chosen precisely because people notice it.	

THE COLLECTION SYSTEM IS PART OF THE TREATMENT PLANT

Budgets usually separate the two, and the separation is where the cost hides. Grease and grit intercepted at a wet well cost a fraction of what they cost once they are load on a cell, and they never consume the treatment capacity you are trying to protect at the lagoon.

CONFINED SPACE AND PUBLIC NOTICE

Wet wells and manholes are confined spaces - follow the site's entry, atmospheric testing, and rescue procedures without exception. Dye tracing that may surface in a watercourse or a public ditch should be notified in advance to the affected parties and, where required, to the regulator.



MEASURED CONDITION / CONTROLLED RECOVERY

Capacity understood. Biology in range.

Measure first

Water temperature, sludge depth, retention time, and collection-system load define the lane before product selection begins.

Hold the sequence

Run the base, match the season, recover capacity, and escalate only when a verified limit changes the plan.

The Bench - size it, dose it, cost it

The four numbers every lagoon conversation comes down to: volume, capacity lost, seasonal quantity, and dollars.

Most operators can quote a pail price and very few can quote a cost per thousand cubic metres of working volume. Those are different numbers and only one of them survives a budget meeting. The Bench turns cell dimensions and a sludge reading into working volume, capacity lost, and retention time - then converts a published per-acre rate into a seasonal quantity and, on your own delivered cost, into the comparison that actually matters: the biological program set against the desludging it defers.

CONVENTIONS USED HERE

Cell volume is calculated by the prismoidal rule for a trapezoidal basin at the side slope you enter - a **3:1** slope means three horizontal to one vertical. Sludge volume is the same calculation applied to a layer of the average surveyed depth sitting on the floor. Published seasonal rates are stated in **lb per acre**, so surface area is calculated at top water level. Nothing on this page is a substitute for the product label, and no figure here is pre-filled from a Chem International price list.

TOOL	FUNCTION	COST BASIS
WW-B1	Cell capacity, dosing, and cost-in-use bench for the CI360 Lagoon Wastewater program	Your delivered cost · entered by you · nothing pre-filled

WORKSHEET 01 / CELL CAPACITY

TOP WATER LENGTH · M TOP WATER WIDTH · M

OPERATING DEPTH · M SIDE SLOPE

AVERAGE SURVEYED SLUDGE DEPTH · M

Mean of the survey points, not the deepest one. Leave at zero if the cell has not been surveyed - and then go and survey it.

AVERAGE DAILY FLOW · M³/DAY

Used for retention time. Use the annual average, then repeat the calculation for the peak month.

DESIGN VOLUME

52,236₃ m

Full cell to 2.4 m operating depth at 3:1 side slopes · 52.2 ML

VOLUME LOST TO SLUDGE

12,077₃ m

23.1% of the design volume is under the blanket

WORKING VOLUME NOW

40,160₃ m

40.2 ML · this is the volume actually doing the treating

SURFACE AREA

5.93 acres

Surface area at top water level - the basis for lb/acre dosing

RETENTION TIME NOW

89.2 days

Design retention was 116.1 days · the blanket has taken 26.8 days off it

WHAT THESE NUMBERS MEAN

- 1

Working volume is 40,160 m³ (40.2 ML) against a design volume of 52,236 m³.
- 2

The blanket is holding 12,077 m³ - 23.1% of the cell. That is capacity you have already paid for and are not using.
- 3

Retention time is 89.2 days. Compare that against the design figure in your approval - short retention shows up as effluent quality long before it shows up as a sludge complaint.
- 4

Surface area is 5.93 acres. Carry that figure into the seasonal dose worksheet - the published seasonal rates are stated per acre, not per cubic metre.
- 5

Re-survey annually, on the same transects, at the same time of year. A blanket measured once is a number; measured three years running it is a trend you can budget against.

PRODUCT

CI ColdZone BioLift · general support

Catalogue: 0.5 lb/acre/day published

RATE · LB PER ACRE

0.5

SURFACE AREA · ACRES

5.93

The cell worksheet currently shows 5.93 acres of surface.

APPLICATIONS PER MONTH

30

SEASON LENGTH · MONTHS

6

CONTAINER SIZE · KG

20

Thirty applications per month is a daily program. Drop it to four for a weekly one.

PER APPLICATION

1.34 kg

0.50 lb/acre across 5.93 acres · 3.0 lb per application

PER MONTH

40.3 kg

30 applications per month

PER SEASON

242.1 kg

6.0-month treatment season · 180 applications in total

CONTAINERS FOR THE SEASON

12.10 × 20 kg

Containers needed to carry the season without a re-order gap.

METRIC RATE

0.56 kg/ha

Metric equivalent of the published per-acre rate, for operators working in hectares.

HOW TO RUN IT

- 1 One application is 1.34 kg (3.0 lb) across 5.93 acres of surface.
- 2 The season needs 242.1 kg - order to that figure, not to last year's invoice.
- 3 Split the application across the cell rather than concentrating it at the inlet. Product placed in one corner treats one corner.
- 4 Log every application: date, water temperature, quantity, and who applied it. A dose without a temperature reading beside it cannot be reviewed later.
- 5 Reconcile at the end of the season. If the drums ran out early the rate is higher than the plan; if product is left over the applications were missed, not saved.

WORKSHEET 03 / COST IN USE

QUANTITY PER SEASON · KG

CONTAINER SIZE · KG

20

The seasonal dose worksheet currently shows 242.1 kg for the season.

YOUR DELIVERED COST PER CONTAINER · \$

0

Delivered, including freight and any surcharge. Nothing here is pre-filled from a price list.

WORKING VOLUME · M³

The cell worksheet currently shows 40,160 m³ of working volume.

DESLUDGING ESTIMATE · \$

YEARS DEFERRED

0

5

PROGRAMME COST · SEASON

-

Enter your delivered cost per container to calculate.

COST PER 1,000 M³

-

-

CONTAINERS PER SEASON

-

-

DESLUDGING · ANNUALISED

-

-

NET POSITION PER YEAR

-

-

WHAT TO DO WITH THESE NUMBERS

- 1 Enter the container size and the price you actually pay delivered - including freight and any surcharge.
- 2 Nothing on this page is pre-filled from a Chem International price list. The delivered-cost figure comes from your site and remains in this worksheet.

Operating data below is taken from the Chem International product catalogue. Where the catalogue record does not publish a figure it is marked rather than estimated - confirm those against the current label, TDS and SDS before commissioning.

CI Digester BioEnzyme	
BASE BIOLOGY • CONTINUOUS	
CHEMISTRY	Facultative aerobic and anaerobic bacteria with specialised enzymes
TARGETS	Fats, oils, grease, proteins, starches, cellulose
SYSTEMS	Lagoons, aerated basins, septic systems, traps and drains
EFFECT	Restores system balance, reduces sludge accumulation, mitigates odour
DOSE	Not published in the catalogue record - confirm against current TDS
CATALOGUE	● CI Digester BioEnzyme

CI HotZone BioLift	
SEASONAL • WARM WATER	
TEMP.	78 °F (25.5 °C) and above
CHEMISTRY	Vitamins, biostimulants, biocatalysts and facultative strains for low-oxygen, high-temperature conditions
APPLY	Water-soluble bags applied from the lagoon shoreline
PAIRING	Published pairing with CI OxyBoost at 20-50 lb per acre for lagoon performance and clarity
DOSE	Record states dose is based on application needs - no fixed rate published
CATALOGUE	● CI HotZone BioLift

CI OxyBoost BioAccelerator	
CAPACITY RECOVERY • OXYGEN	
CHEMISTRY	Granular peroxide-based oxygen release agent
MECHANISM	Granules settle through the column and dissolve slowly at the bottom, liberating oxygen into the organic mass
EFFECT	Disrupts anaerobic zones, suppresses hydrogen sulfide and methane odour, opens aerated channels
PUBLISHED RATE	20-50 lb per acre where paired with CI HotZone BioLift
PAIRS WITH	CI Sludge Sharks and CI Digester BioEnzyme
CATALOGUE	● CI OxyBoost BioAccelerator

CI BioLink Lift Station	
COLLECTION SYSTEM • AUTOMATED	
FORM	Dual-action bacterial block - pseudomonas core for immediate impact, bacillus outer shell for sustained release
PLACEMENT	Hung beneath the incoming flow line
SERVICE LIFE	Dissolves completely over 2-10 weeks depending on daily volume
VOLUME BAND	50,000-300,000 GPD
REDUCES	FOG accumulation, hydrogen sulfide, BOD and noxious odour - zero residue, no netting
CATALOGUE	● CI BioLink Lift Station

CI ColdZone BioLift	
SEASONAL • COLD WATER	
TEMP.	Consistent activity between 3 °C and 15 °C
STANDARD DOSE	0.5 lb per acre per day for general biological support
AMMONIA DOSE	2 lb per acre per day where additional ammonia reduction is needed
APPLY	Water-soluble bags, thrown from the shoreline - no equipment required
REDUCES	Ammonia, BOD, TSS and sludge at low temperature
CATALOGUE	● CI ColdZone BioLift

CI Sludge Sharks	
CAPACITY RECOVERY • SLUDGE	
FORM	Pre-formed biological treatment spikes - no mixing, no equipment
DELIVERY	Dissolves and releases bacteria, enzymes and nutrients directly into the sludge layer
TARGETS	Complex organic solids including fats, oils, grease and cellulose
USE CASE	Excessive sludge build-up, declining treatment capacity, rising dredging cost
DOSE	Spike count per surface area not published - confirm against current TDS
CATALOGUE	● CI Sludge Sharks

CI Respond Lagoon Boost	
UPSET RECOVERY • START-UP	
CHEMISTRY	Fast-growing heterotrophic bacteria supported by bio-stimulants
KEY PROPERTY	Strains selected for rapid flocculation - bio-flocs settle and stay in the system rather than washing out
USE CASE	Biological upset, overload, toxic shock, or bringing a new cell online
DOSE	Not published in the catalogue record - confirm against current TDS
CATALOGUE	● CI Respond Lagoon Boost

CI Biotrap Grease Trap Renovator	
COLLECTION SYSTEM • FLOATING	
CHEMISTRY	100% d-Limonene, non-emulsifying
MECHANISM	Floats on the surface, forms a persistent odour-blocking layer, and strips grease from walls on each level cycle
COMPAT.	Fully biodegradable and safe for active biological treatment - will not drive grease deeper into the system
REAPPLY	Built-in red indicator dye signals when the layer is spent
RATE	Exact application rate not published - confirm against current TDS
CATALOGUE	● CI Biotrap Grease Trap Renovator

CI Grease D Solve Plus	
COLLECTION SYSTEM • FLOATING	
CHEMISTRY	50% d-Limonene, non-corrosive
COMPAT.	Will not disrupt bacterial action in septic systems – an alternative to acid and caustic openers
USE CASE	Grease dissolution and surface control in lift stations and wet wells
RATE	Not published in the catalogue record – confirm against current TDS
CATALOGUE	● CI Grease D Solve Plus

CI 444 Attack Sewer Solvent	
SEWER INFRASTRUCTURE • BLOCKAGE	
CHEMISTRY	Non-acidic granular caustic alkali activated with fine aluminum needles
MECHANISM	Vigorous exothermic reaction on contact with water – heat and turbulence break down the obstruction
TARGETS	Fats, oils, hair, cellulose, protein-based debris and hard water scale
REG.	NSF Registered (L1) – suitable for food processing environments
HANDLING	Exothermic caustic – full PPE, never combine with acid products or other openers
CATALOGUE	● CI 444 Attack Sewer Solvent

CI Sewer Tracer Dye	
DIAGNOSTICS • FLOW TRACING	
COLOUR	Fluorescent yellow / green – a non-natural colour, chosen to control public reaction
USE	Flow-time studies, volume analysis, leak detection, overflow and pollution investigations
COMPAT.	Biodegradable, harmless to wildlife at proper concentrations, does not affect treatment processes
CONC.	Working concentration not published – confirm against current TDS before a public trace
CATALOGUE	● CI Sewer Tracer Dye

CI Chemzyme Dry Bacteria Strain	
BASE BIOLOGY • DRY	
FORM	Concentrated dry biological treatment with selected bacterial strains and enzymes
TARGETS	Grease, oils, paper, detergents and suspended solids
BEHAVIOUR	Shelf-stable; bacteria colonise rapidly on contact and suppress anaerobic odour
SYSTEMS	Lift stations, grease traps, septic systems and lagoons – reseeded or ongoing maintenance
SPEC	Strain counts, packet weight, activation profile and dose rates unpublished in the record
CATALOGUE	● CI Chemzyme Dry Bacteria Strain

CI Silt & Sand Flush	
SEWER INFRASTRUCTURE • DEPOSITS	
CHEMISTRY	Highly charged polymer dispersant
MECHANISM	Penetrates compacted deposits and separates solids so they move freely during standard flushing or jetting
TARGETS	Mud, silt, sand and sediment in storm and sanitary mains, lift stations and retention basins
DOSE RATIOS	Not published in the catalogue record – confirm against current TDS
CATALOGUE	● CI Silt & Sand Flush

CI Lemon Fury	
SEWER INFRASTRUCTURE • ODOUR	
CHEMISTRY	Solvent-free liquid odour counteractant
NEUTRAL.	Hydrogen sulfide, ammonia and decomposition odours at the source
COMPAT.	Does not harm the microbial activity that wastewater and septic performance depends on
APPLY	Fully water-soluble – spray, pour or injection across sewer mains, lagoons, holding tanks and collection areas
DOSE	Not published in the catalogue record – confirm against current TDS
CATALOGUE	● CI Lemon Fury

CI Excelsior Advanced BioEnzyme	
BASE BIOLOGY • INDUSTRIAL DUTY	
ROLE	Advanced biostimulant for wastewater and soil rehabilitation in petroleum refining operations
TARGETS	Petroleum hydrocarbons, glycols, amines, sulfides and heavy metals – the profile that drives nitrification failure
EFFECT	Accelerates COD breakdown, reduces algae and organic build-up in lagoons, stabilises biology through micronutrient delivery
SPEC	Enzyme profile, bacterial content, dosing guidance and storage all unpublished in the record
CATALOGUE	● CI Excelsior Advanced BioEnzyme

THE BENCH IS A PLANNING TOOL

Results are arithmetic on the numbers you enter. Cell volume assumes a regular trapezoidal basin and uniform side slopes; a real cell has berm irregularities, an uneven floor, and a blanket that is deeper at the inlet than at the outlet. Retention time takes no account of short-circuiting or wind-driven mixing. Use these figures to build a starting position and a budget, then correct the model against your own survey and your own container-change record.

One system, three deployments - what changes is the pressure, not the logic

The stage architecture stays fixed. Which stage carries the weight moves with the site.

A small rural cell, a municipality under a discharge limit, and an industrial lagoon taking a hydrocarbon-linked load all run the same six stages in the same order. What differs is which stage the site is actually living in, and how much of the year it spends there. Setting that correctly is the entire deployment decision.

Rural & Small Municipal

Stable cell · limited staff · prevent decline before it becomes urgent

BASE

CI Digester BioEnzyme as the continuous backbone, or the dry strain where storage and handling favour it.

SEASONAL

CI ColdZone BioLift at the published general-support rate through the cold months.

ANNUAL

One sludge survey, same transects, same month. This is the whole early-warning system on a small site.

STANDBY

CI Respond Lagoon Boost held for spring start-up and thaw upsets rather than ordered after one.

Municipal Under Compliance Pressure

Discharge limits · ammonia season · reporting obligations

BASE

Continuous backbone with effluent monitoring - the base rate is never the escalation.

AMMONIA

CI ColdZone BioLift stepped to the published 2 lb/acre/day setting when the cold-water trend calls for it.

CAPACITY

Sludge held well under band so retention time is protected before the limit is tested.

REPORTING

Every application logged with the water temperature. An undocumented program cannot be defended at a review.

Industrial & High-Load Cells

Hydrocarbon or process load · thermally influenced water

BASE

CI Excelsior Advanced BioEnzyme where the contaminant profile is genuinely industrial.

SEASONAL

CI HotZone BioLift on thermally loaded water, with oxygen release at the published pairing rate.

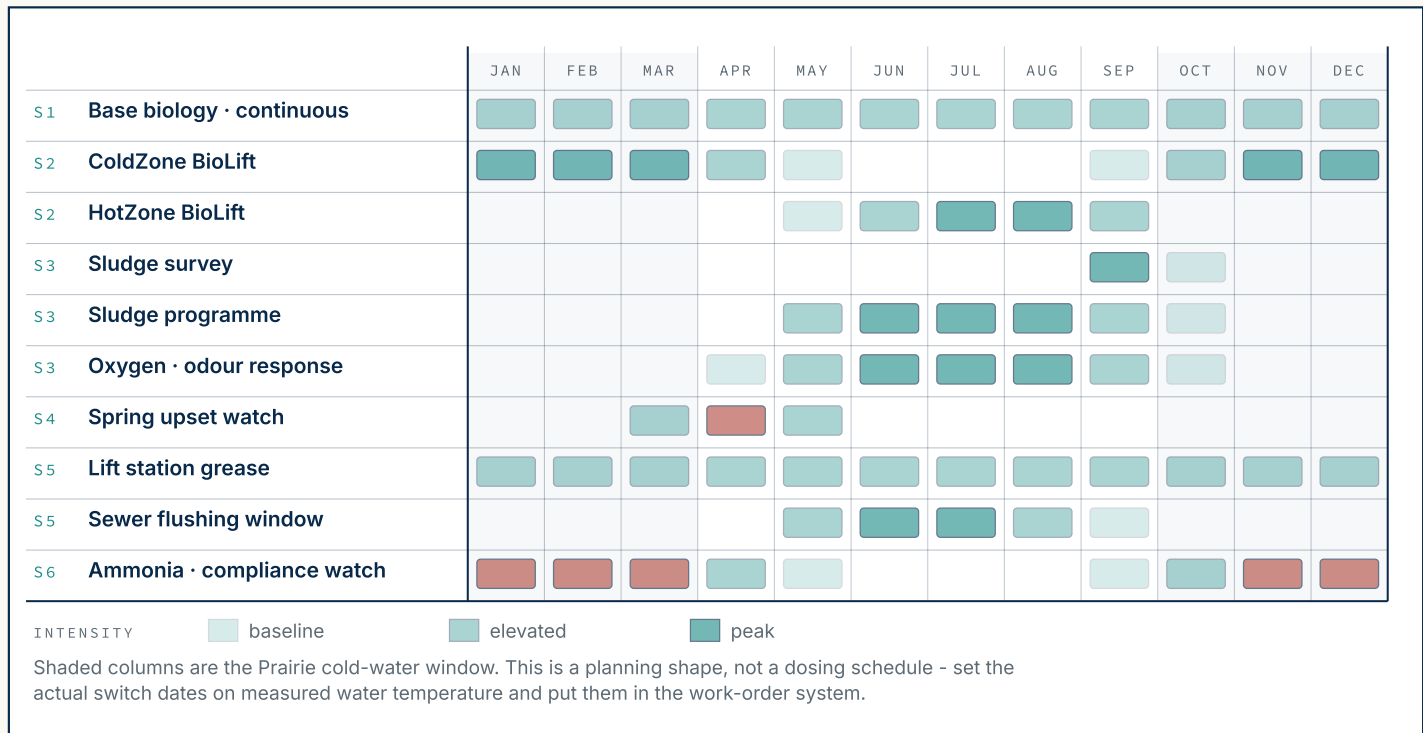
SLUDGE

Heavier organic loading means a faster blanket - survey more often than annually.

UPSET

Recovery courses matched to the cause, not to the symptom. An industrial upset is not a hydraulic one.

PLANNED OPERATING YEAR • TWELVE-MONTH VIEW



CONDITION AT THE CELL What you are actually looking at	STAGE Where it belongs in the sequence	FIRST MOVE Do this before anything else	PRODUCTS	ESCALATE ONLY IF...
S1 Routine maintenance on a stable cell	Base	Hold the continuous backbone and leave it alone.	● CI Digester BioEnzyme	Response is inconsistent across load changes - then look at the biostimulant lane.
S1 Remote site, liquid handling is awkward	Base	Run the dry strain as the backbone instead.	● CI Chemzyme Dry Bacteria Strain	Re seeding is needed repeatedly - the population is being lost, not underfed.
S2 Cold water, treatment slowing	Seasonal	Confirm cell temperature, then run the cold-water strain in band.	● CI ColdZone BioLift	Ammonia keeps climbing at the general rate - step to the published 2 lb/acre setting.
S2 Warm season, low oxygen, heavy load	Seasonal	Run the warm-water strain at 25.5 °C and above.	● CI HotZone BioLift ● CI OxyBoost BioAccelerator	Odour persists - review loading and aeration before raising anything.
S3 Sludge depth rising on survey	Capacity	Convert depth to volume, then place product on the deposit.	● CI Sludge Sharks ● CI Chemzyme Dry Bacteria Strain	Two consecutive surveys still rise - review loading and consider mechanical options.
S3 Odour at the berm, anaerobic zones	Capacity	Oxygen release into the compacted mass.	● CI OxyBoost BioAccelerator	Odour is chronic rather than event-driven - that is a loading review, not a bigger dose.
S4 Biology has crashed after a shock	Upset	Confirm it is a crash, not a slowdown, then run one course.	● CI Respond Lagoon Boost	The cell does not stabilise - look for a continuing toxic input.
S4 New cell being commissioned	Upset	Seed with the recovery blend, then transition to base biology.	● CI Respond Lagoon Boost ● CI Digester BioEnzyme	Population will not hold - check retention time and short-circuiting.
S4 Upset traces to an industrial discharge	Upset	Match the tool to the contaminant profile.	● CI Excelsior Advanced BioEnzyme	Nitrification does not return - the discharge itself needs addressing upstream.

CONDITION AT THE CELL What you are actually looking at	STAGE Where it belongs in the sequence	FIRST MOVE Do this before anything else	PRODUCTS	ESCALATE ONLY IF...
S5 Grease cap in the wet well	Collection	Break the cap, then hold it with the automated block.	● CI Biotrap Grease Trap Renovator ● CI BioLink Lift Station	The cap reforms inside the block interval - the interval is wrong for the flow.
S5 Silt and sand reducing main capacity	Collection	Dispersant inside the scheduled flushing program.	● CI Silt & Sand Flush	Deposits return quickly - look upstream for the source, not at the chemistry.
S5 Hard organic blockage in a line	Collection	Granular opener, full PPE, never with another product.	● CI 444 Attack Sewer Solvent	Blockages recur - the flushing schedule is the fix, not the opener.
S5 Odour complaints at mains or tanks	Collection	Counteractant at the source while the cause is found.	● CI Lemon Fury	Complaints continue - the odour is being generated, not just released.
S5 Flow path or leak is unverified	Collection	Trace it, with notice given first.	● CI Sewer Tracer Dye	Results contradict the network drawing - update the drawing.
S6 Ammonia trend rising in cold water	Escalation	Confirm ammonia is the limit, then use the published ammonia setting.	● CI ColdZone BioLift	Ammonia holds high through warm water too - that is a different limit.
S6 COD, algae, or clarity is the limit	Escalation	Confirm the parameter, then treat it as a sourcing conversation.	no catalogue lane	No catalogue lane currently exists - see the unserved lanes in Section 04.
RULE OF THUMB	If the answer to a lagoon problem is "dose it heavier," check the four things that are free first: water temperature, sludge depth, retention time, and what the collection system is sending. Concentration is the last variable to move, not the first.			

☐ Continuous lane - runs whether or not anything is wrong
 ☐ Escalation column - conditions that change the plan

Set the program, then keep it in range

Commissioning turns the stage architecture into work that survives an operator change.

A lagoon program that lives in one operator’s head resets every time that person moves on, and on a small municipal system that happens more often than anyone plans for. Confirm the condition, lock the base layer, set the seasonal switch on a measured temperature, put the survey on the calendar, and write the numbers somewhere a new hire can find them. The goal is that the person covering next spring can state what the cell runs and why.

COMMISSIONING CHECKLIST

1

Confirm the lagoon condition
Establish whether the presenting issue is routine maintenance, sludge, odour, seasonal weakness, ammonia, or collection-system load. Everything downstream depends on getting this call right, and it is the one step most often skipped.

2

Establish the base layer
Put the continuous backbone in place before anything corrective is ordered. A corrective product dosed onto a cell with no base biology treats a symptom and leaves the cause.

3

Set the seasonal switch on a thermometer
Record cell temperature at depth on a fixed schedule and define the switch points against the published bands - 3-15 °C and 25.5 °C and above - rather than against a date.

4

Put the sludge survey on the calendar
Fixed transects, fixed points, same month each year. Convert depth to volume and to retention days lost, and report the trend annually whether or not anyone asked for it.

5

Define the escalation triggers
Write down what has to be true before a recovery course, an oxygen program, or an ammonia step-up is started - and what has to be true before it stops. Undefined escalations never end.

6

Document and post the program
Rates, application dates, temperature readings, survey results, and container-change intervals belong on a sheet in the building, not in one person's notebook. A documented program survives turnover; an undocumented one does not.

KPI DASHBOARD • WHAT TO MEASURE

SL

Sludge depth and volume
Average depth across fixed transects, converted to cubic metres and to percentage of design capacity. This is the leading indicator for everything else on this list.

HRT

Retention time
Working volume divided by average daily flow, tracked against the design figure. Retention lost to sludge shows up in effluent quality long before it shows up in a complaint.

TMP

Water temperature
Measured at depth on a fixed schedule. It selects the seasonal strain and it explains most of what ammonia does across a year.

NH

Ammonia trend
Direction matters more than any single result. A trend crossing a seasonal threshold is the signal to change strain or step the rate - a single sample is not.

BOD

BOD, COD and TSS
The organic load picture. Creeping numbers on a cell that used to hold them usually mean lost retention rather than weak chemistry.

CV

Cost per 1,000 m³
Programme cost normalised to working volume. It is the only form of the number that compares one cell to another, or this year to last year.

WHAT THE SITE REPORTS	FIRST MOVE	PRODUCTS	WHY
ODOUR AND OXYGEN			
<i>"The neighbours are complaining and nothing has changed."</i>	Check dissolved oxygen and the blanket before ordering anything.	● CI OxyBoost BioAccelerator	Odour at the berm is almost always low dissolved oxygen pushing the deposit anaerobic. Oxygen release opens the mass; it does not correct the loading that drove oxygen down.
<i>"We dose more product every year and it still smells."</i>	Stop escalating the base rate and survey the sludge.	● CI Sludge Sharks ● CI OxyBoost BioAccelerator	A base biology dose cannot reach a compacted anaerobic deposit. Chronic odour on a rising blanket is a capacity problem wearing an odour costume.
SEASONS AND AMMONIA			
<i>"Ammonia climbs every autumn like clockwork."</i>	Switch strain ahead of the turn, on measured water temperature.	● CI ColdZone BioLift	Warm-water strains stop working below their band. Switching after ammonia moves means the cell spends the first weeks of the cold season with no effective seasonal layer.
<i>"Spring is always a write-off."</i>	Decide whether the biology slowed or crashed - they get different answers.	● CI ColdZone BioLift ● CI Respond Lagoon Boost	A slowdown recovers with the right strain in band. A crash needs a rebuild. Treating one as the other costs a season either way.
<i>"We kept the summer product running into October."</i>	Return to the temperature bands and hold base biology between them.	● CI Digester BioEnzyme	Between 15 °C and 25.5 °C neither seasonal product is inside its published band. Running one anyway is spend without a mechanism.
CAPACITY AND SLUDGE			
<i>"We have a dredging quote and no budget for it."</i>	Re-survey, then compare the biological program against the deferred capital cost.	● CI Sludge Sharks ● CI Chemzyme Dry Bacteria Strain	A quotation against an unmeasured blanket is a guess with a price on it. Take both numbers to the Bench before the capital conversation, not after.
<i>"Effluent numbers are drifting on a cell that used to be fine."</i>	Check retention time against the design figure.	● CI Sludge Sharks	Nothing about the chemistry changed - the volume did. Lost working volume is the most common cause of a slow, unexplained decline.

WHAT THE SITE REPORTS	FIRST MOVE	PRODUCTS	WHY
COLLECTION SYSTEM			
<i>"The wet well caps over within weeks of cleaning."</i>	Break it once, then hold it automatically.	● CI Biotrap Grease Trap Renovator ● CI BioLink Lift Station	Manual cleaning treats the symptom on a schedule set by labour availability. A dissolving block treats it on a schedule set by flow.
<i>"We are jetting the same section twice a year."</i>	Add a dispersant to the scheduled flush rather than reacting to the next backup.	● CI Silt & Sand Flush	Repeat jetting on one section means the deposit is re-forming faster than the schedule allows. Change the schedule and the chemistry together.
<i>"We do not actually know where that line discharges."</i>	Trace it, with notice given to anyone downstream first.	● CI Sewer Tracer Dye	An unverified flow path is a compliance exposure. The dye is chosen to be visible, so tell people before it appears in a ditch.

PROGRAM HEALTH CHECK

No sludge survey on record A cell managed without a blanket measurement is managed on opinion. It is also the one condition that turns into a capital request without warning.	Seasonal switch set by date A calendar switch guarantees that the strain is out of band for part of every year, in both directions.	Corrective products ordered more often than the base That pattern says the backbone was never established and the site is buying symptom relief on a subscription.
Blanket trend flat or falling Two or three surveys holding band is the proof the capacity program is working. Report it before anyone asks.	Every application logged with a temperature A dose without a temperature beside it cannot be reviewed. With one, the whole season becomes readable a year later.	Cost tracked per 1,000 m³ Cost normalised to working volume survives a budget meeting. A pail price does not.

CI360™ Lagoon Wastewater is a task-based program guide, not a substitute for site-specific procedures or for the conditions of your approval to operate. Confirm application rates, temperature bands, handling requirements, and substrate compatibility against current product labels, technical data sheets, and SDS before use. Follow site SOPs, confined-space and fall-protection procedures, PPE requirements, and applicable municipal, provincial and federal regulations. Never combine caustic openers with acid products. Product names follow the Chem International catalogue; live PDF links lead to the corresponding product page on chemintonline.com. Bench calculations are arithmetic on operator-entered figures and do not constitute a quotation. Emergency: CANUTEC 1-613-996-6666.

WORKSHEET WW-08	CONTROL RECORD Site lagoon operating program	STANDARD Measured, posted, reviewed
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Use this operating record to turn the six-stage framework into a visible site standard. Enter settings from current product labels, SDS, technical data sheets, laboratory results, the approval to operate, and the site work-order system.

MUNICIPALITY / FACILITY / CELL 	APPROVAL / DISCHARGE WINDOW
WORKING VOLUME / AVERAGE DAILY FLOW 	CURRENT RETENTION TIME
WATER TEMPERATURE / DEPTH / DATE 	AVERAGE SLUDGE DEPTH / SURVEY DATE

LOCKED SIX-STAGE OPERATING SEQUENCE			
STAGE	PRODUCT / SETTING	TRIGGER / INTERVAL	PROOF / STOP CONDITION
S1	Base biology	Continuous	Effluent trend / documented rate
S2	Seasonal match	Measured temperature band	Temperature logged with every dose
S3	Capacity recovery	Surveyed blanket / low oxygen	Sludge volume and retention trend
S4	Upset recovery	Confirmed crash / start-up	Stable biomass; return to base
S5	Collection system	Grease, grit, blockage, odour	Inspection / service / flush record
S6	Escalation	Verified parameter limit	Laboratory trend and defined stop

COMMISSIONED BY	DATE	NEXT REVIEW / SURVEY
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Control rule: If a rate, product, strain, or trigger changes, record who changed it, why it changed, and what result confirmed the change. The program is only standardized when another operator can run the same sequence from the record.



CI360™ • LAGOON WASTEWATER

Need a site-specific lagoon program?

Send cell dimensions, recent sludge surveys, water temperature records, and effluent results. CI360 can be translated into a dosing schedule, a seasonal plan, a sludge-recovery protocol, and an operator checklist matched to the exact condition of your cell.

[Request a program review](#)

[Call 1-800-665-7287](#)

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