

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 AEROVISTA PLACE, SUITE 101
SAN LUIS OBISPO, CA 93401-7906**

**RENEWAL OF WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2004-0124
NPDES PERMIT NO. CA0049972**

Waste Discharger Identification No. 3429811001
Proposed for Consideration at the December 3, 2004 Board Meeting

For

**CASMALIA RESOURCES
AND
CASMALIA RESOURCES SITE STEERING COMMITTEE**

Santa Barbara County

The California Regional Water Quality Control Board, Central Coast Region (hereinafter **Regional Board**), finds that:

1. The Casmalia Steering Committee (hereinafter **Discharger**) did not submit a revised report of waste discharge for proposed Order No. R3-2004-0124. Discharge volume estimates, treatment options, Site conditions related to the discharge remain unchanged, and the probability of a discharge is low. Title to the Casmalia Site is listed as Casmalia Resources, however; the Discharger is required to operate the Site under direction of the United States Environmental Protection Agency (**U.S. EPA**). The term of this NPDES permit is five years and can be modified or terminated by the Regional Board at any time.
2. The Discharger is currently implementing remedial measures and maintenance activities under a U.S. EPA Consent Decree. The U.S. EPA is the lead Federal agency overseeing activities at the Casmalia Site and the Department of Toxic Substances Control is the lead State agency responsible for coordinating State regulatory activities during the implementation of the Consent Decree. Land surrounding the Casmalia Site is used for grazing, cattle production, and oil production.
3. The Casmalia Site is 252 acres and is located at 120 degrees 33' 16" West, and 34 degrees 51' 52" North (Casmalia Quadrangle, California, Santa Barbara County). The proposed discharge to Casmalia Creek is located west of the Site at 120 degrees 32' 39" West, and 34 degrees 51' 42" North. The Casmalia Site is a former hazardous waste management facility with surface impoundments, burial cells, underground injection wells, landfills, and waste treatment systems (Attachment B). Waste is no longer accepted. The Site currently consists of:
 - a. Five hazardous waste landfills.
 - b. Seven burial cells.
 - c. Eleven injection bore holes.
 - d. A groundwater treatment plant.
 - e. A series of ponds to store groundwater treatment plant effluent, and collect storm water runoff.
 - f. Various groundwater collection trenches and associated appurtenances (Attachment C).
4. The surface water pond system at the site consists of the following:
 - a. Pond 18: receives groundwater treatment plant effluent.
 - b. Pond A-5: historically received groundwater treatment plant effluent.

- c. RCF Pond, A-Series Pond, and Pond 13: primarily receive storm water runoff (Attachment C).
5. Industrial wastes previously disposed at the site primarily include metals, caustics, acids, cyanides, minerals, pesticides, solvents, polychlorinated biphenyls, and petroleum hydrocarbons. The extent of site wastes in soil and groundwater is not fully known. Additionally, the site has not been fully stabilized to contain and manage waste sources in soil and groundwater. As a result, there is a reasonable potential for wastes disposed of at the site to be found in the five ponds.
6. The RCF Pond and A-Series Pond are unlined and were created as through the excavation of former surface impoundments. These ponds are used to store storm water. Pond 13 is also unlined and was historically used as a storm water holding pond during site operations. This pond continues to capture storm water runoff. Storm water was last discharged from the site to Casmalia Creek in 1995 under the State Water Resources Control Board (**SWRCB**) General Permit to Discharge Storm Water Associated with Industrial Activity (**General Permit**). The discharge was conducted under emergency conditions during high water level conditions in the RCF Pond and A-Series Pond. The emergency discharge was initiated to prevent potential catastrophic failure and overflow of the RCF Pond and A-Series Pond. Trace concentrations of volatile organic compounds were detected in pond water that was discharged. Elevated total dissolved solids (**TDS**) and minerals were also detected in the discharge. U.S. EPA conducted the discharge.
7. U.S. EPA in conjunction with the United States Fish and Wildlife (**U.S. FWS**) Service performed pre- and post discharge surveys of Casmalia Creek and Schuman Creek to assess potential impacts of the discharge on water quality, biological resources, and two species listed and “Threatened” or “Endangered” pursuant to the Federal Endangered Species Act. U.S. EPA in conjunction with the U.S. FWS published its findings in a report dated July 1996, and concluded that the discharge had no adverse impacts to water quality, biological resources, and the two Threatened or Endangered Species (California Red Legged Frog and the Tidewater Goby).
8. Pond 18 and Pond A-5 are unlined. Pond 18 receives effluent discharges from the on-site groundwater treatment plant, while discharges of groundwater treatment plant effluent to Pond A-5 have been discontinued. Influent to the groundwater treatment plant originates from on-site groundwater extraction features including Perimeter Source Control Trench Sumps 1, 2, 3, and 4 (**PSCT-1, 2, 3, and 4**) and Sump 9B. Water from the groundwater treatment plant contains organic constituents and metals above background water quality. Pond 18 is hydraulically connected to the RCF Pond and the A-Series Pond is hydraulically connected to Pond A-5. Pond 18 and Pond A-5 leak into the RCF Pond and A-Series Pond respectively via subsurface flow and visible surface seepage. Storm water runoff also enters Pond 18 and Pond A-5.
9. Light non-aqueous phase liquids and dense non-aqueous-phase liquids (collectively **NAPLs**) have been detected in the Gallery Well, Sump 9B, two piezometers called RGPZ-7C and RGPZ-7D, and PSCT-1. The Discharger measured NAPLs within the Gallery Well at a thickness of approximately nine feet.
10. Natural hydraulic interconnections exist between groundwater and all five ponds as evidenced by groundwater elevation data in adjacent monitoring wells and visible groundwater seeps flowing into the RCF Pond and A-Series Pond.
11. Storm water runoff contacts and erodes contaminated surface soils. Contaminated surface soil entrained in the storm water runoff flows into four of the five ponds, primarily the RCF Pond and A-Series Pond with lesser quantities flowing into Pond 18 and Pond A-5.
12. Water in the RCF Pond and A-Series Pond contains TDS from weathered marine sedimentary rocks and soil native to the Casmalia Site and surrounding area. TDS primarily consist of sodium and chloride ions that have concentrated in the RCF Pond and A-Series Pond. The concentrated TDS results from seasonal storm water runoff collection and storage followed by evaporation during successive years without a discharge from the ponds. Elevated metals, such as nickel and selenium, also exist in the ponds. Nickel was detected above Maximum Contaminant Levels established for drinking water in all five ponds and in a seep known as the “A-Series Seep.”

13. Organic constituents have been detected in all five ponds. Organic constituents include volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides, dioxins, and furans.
14. The Discharger proposed using reverse osmosis as one potential treatment technology alternative to reduce TDS. The reverse osmosis process would also reduce metals and organic pollutants. To increase reverse osmosis treatment efficiency and efficacy, pond water may undergo carbon filtration, precipitation/flocculation, and/or ion exchange to reduce organic contaminants, metals, minerals (including salts), and suspended sediments.
15. The Discharger proposes discharging water to maintain berm stability and to manage freeboard in all five ponds. The discharge point is located at Range 35 West, 120 degrees 33' 07" W, and 34 degrees 51' 35" N, and the receiving water is Casmalia Creek (Attachment A). Casmalia Creek is tributary to Schuman Creek and Schuman Creek discharges to the Pacific Ocean (Attachment A).
16. This Order requires the Discharger to maximize on-site water use to the extent practicable to minimize the need for NPDES discharges. No discharges have occurred since Order No. 99-034 was adopted. This has been accomplished by the Discharger's on-site water management strategy and low annual rainfall.
17. Stream channel alterations conducted by a landowner and lessee of Casmalia Resources have degraded water quality in Casmalia Creek. Alterations including grading and disposal of imported fill material have caused turbidity and erosion in Casmalia Creek and its tributaries.
18. The Casmalia Creek is further degraded from:
 - a. Erosion resulting from reduced riparian vegetation from cattle grazing.
 - b. Creek bank degradation from cattle accessing creek water.
 - c. Placements of non-engineered earthen sediment dams that restrict and change normal stream flow.
19. Erosion problems in Casmalia Creek related to cattle grazing are evidenced by the following:
 - a. Undercut creek banks.
 - b. Collapsing creek banks in undercut areas.
 - c. Incised creek channel and tributaries.
 - d. Spars and/or absence of vegetation to hold soil.
 - e. Extensive rill and gully erosion adjacent to the creek channel and its tributaries.
 - f. Highly turbid water after rainfall events.
20. The designated beneficial uses of Casmalia Creek include:
 - a. Municipal and domestic supply.
 - b. Agricultural supply.
 - c. Water contact recreation.
 - d. Non-contact water recreation.
 - e. Commercial and sport fishing.
 - f. Warm freshwater habitat.
 - g. Wildlife habitat.
 - h. Spawning, reproduction, and/or early development.
21. Designated beneficial uses of groundwater in the area include:
 - a. Municipal and domestic water supply.
 - b. Agricultural water supply.
 - c. Industrial water supply.
22. Documented beneficial uses of Casmalia Creek not listed in the Basin Plan include:

- a. Groundwater recharge.
23. Documented beneficial uses of Schuman Creek (downstream of Casmalia Creek) not listed in the Basin Plan include:
 - a. Rare (i.e., presence of Threatened and Endangered species).
 24. At least two species documented to exist in the San Antonio Hydrologic Unit are listed as "Threatened" and "Endangered" pursuant to the Federal Endangered Species Act, the California Red Legged Frog (Threatened) and the Tidewater Goby (Endangered). The California Red Legged Frog has been observed in on-site ponds and in Schuman Creek downstream of the confluence with Casmalia Creek. The Tidewater Goby exists in Schuman Creek in a limited area adjacent to where Schuman Creek discharges to the Pacific Ocean. Three animals with special protection status under California Department of Fish and Game regulations (Title 14 of the California Code of Regulations) were found on-site during biological surveys conducted by the Discharger. These animals include the Western Spade Footed Toad, the Two-Striped Garter Snake, and the Coast Horned Lizard.
 25. The existing Casmalia Creek beneficial use of groundwater recharge is evidenced by groundwater data and seasonal variations in Creek flow.
 26. The Regional Board is responsible for implementing the NPDES permit program pursuant to the Federal Clean Water Act (CWA). The Regional Board is the lead permitting agency for proposed discharges outside the Casmalia Site boundary.
 27. This facility is a minor discharge as defined by the U.S. EPA
 28. The source of much of the water proposed for discharge is storm water. However, it is not appropriate to regulate discharges of pond water under the General Permit because of hydraulic commingling of storm water runoff with site wastes. A site-specific NPDES permit is appropriate in this case to regulate off-site discharges of storm water runoff from the five ponds, effluent from the groundwater treatment plant, and treated landfill leachate.
 29. In September 2003, the Discharger applied for and was enrolled in the General Permit for managing storm water discharges from capped landfills. This area of the Casmalia Site consists of 45 acres where the Discharger constructed engineered final covers with liners to prevent rainwater infiltration into underlying wastes. Landfills included in the storm water runoff area are the Pesticides/Solvents Landfill, Heavy Metals Landfill, Caustic Cyanide Landfill, and Acids Landfill (Attachment C). Storm water from the area is segregated from the rest of the facility by engineering controls, thus preventing contact with Site wastes. Under these circumstances, it is appropriate to manage off-site storm water discharges from the capped landfill area under the SWRCB General Permit.
 30. To maintain compliance with General Permit discharge provisions, the Discharger developed a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the General Permit. Staff provided comments to the SWPPP, which included a request that the Discharger develop and implement a plan for managing potential wastes generated within the runoff area resulting from subsurface investigations into the underlying waste masses. This work is part of the Remedial Investigation/Feasibility Study element of work required under the Consent Decree between U.S. EPA and the CSC. Wastes brought to the surface where they could contact storm water must be over-excavated, clean soil must be used to backfill excavations, and the vegetation layer must re-established to prevent erosion.
 31. The Regional Board's consideration of water quality-based effluent limitations includes whole effluent toxicity pursuant to 40 Code of Federal Regulations (CFR) 122.44(d). These regulations require that water quality-based effluent limits must be established for discharges that cause, have the reasonable potential to cause, or contribute to exceedance of State water quality standards.
 32. Federal CWA regulations require that State water quality standards include an anti-degradation policy consistent with the Federal policy (40 CFR sec. 131.12). The SWRCB established California's anti-degradation policy in SWRCB Resolution 68-16 (**Resolution 68-16**), which is deemed to incorporate the requirements of the Federal anti-degradation policy. Resolution 68-16 requires that existing

quality of waters be maintained unless degradation is justified based on specific findings. Degradation can be permitted only if the Regional Board finds all of the following:

- a. The highest water quality consistent with maximum benefit to the people of the State will be maintained.
 - b. The change in water quality will not unreasonably affect present and anticipated beneficial uses or create a condition of pollution or nuisance.
 - c. The change will not result in water quality less than that prescribed in water quality control plans and policies.
 - d. The NPDES permit regulating the discharge requires the best practicable treatment or control be applied to the discharge necessary to ensure all of the above.
33. To comply with the first priority of the anti-degradation policy in Resolution 68-16, no detectable discharge of organic constituents is permitted. Organic pollutants potentially found in the pond water to be discharged from the site are not found naturally in Casmalia Creek and its watershed. The Discharger proposed removing all organic constituents from the discharge. This means no detectable organic constituents will be found in the discharge. Organic constituents consist of such chemicals as trichloroethylene (**TCE**), acetone, tetrachloroethylene (**PCE**), methylene chloride, benzene, 1, 2-dichloroethylene (**1, 2-DCE**), and vinyl chloride, to name a few. Best available technology can be readily implemented for removing organic contaminants from the discharge. Order No. R3-2004-0124 requires analytical methods be used to assess compliance for removal of organic constituents.
34. TDS is present in the five ponds at concentrations exceeding background water quality in Casmalia Creek and Schuman Creek. To comply with the first priority of the anti-degradation policy in Resolution 68-16, the numeric effluent limitation for TDS is based on background concentrations with a margin for safety. The established TDS numeric effluent limit also corresponds with the upper limit of the California Secondary Maximum Contaminant Level for protection of taste and odor aesthetics water quality.
35. The local geology surrounding Casmalia Creek and Schuman Creek is naturally high in salts. Thus, TDS occurs naturally in groundwater and surface water. Groundwater in the vicinity of the site has naturally poor quality with TDS concentrations ranging from 900 to 12,000 parts per million (**mg/l**) in samples collected from monitoring wells up-gradient and cross gradient of the Site. The marine origin of the local geology results in groundwater mineral water chemistry similar to ocean water. These minerals include sodium, chloride, sulfate, magnesium, potassium, calcium, and trace minerals, primarily including iron, manganese, barium, copper, zinc, nickel, cadmium, antimony, and selenium.
- Surface water chemistry in the vicinity of the site is similar to groundwater chemistry. TDS concentrations range from 1,030 to 16,200 mg/l with an average background concentration of 2,000 mg/l. Additional contribution of TDS to the Casmalia Creek watershed occurs from previous crop production and on-going cattle grazing that cause soil erosion and resultant turbidity, stream bank deterioration and collapse, and reduced riparian habitat. Grading in tributaries to Casmalia Creek and in Casmalia Creek, along with streambed alterations, placement of fill material in the creek, and destruction of riparian habitat, also contribute to Casmalia Creek's deterioration by increasing turbidity and altering natural stream temperatures, flows, and water chemistry. Because a variety of pollutant sources exist, establishing representative background concentrations for TDS in Casmalia Creek is problematic. The 1,000 mg/l TDS numeric effluent limit is established below the average background concentration based on best professional judgment. The limit is intended to prevent further water quality degradation in Casmalia Creek.
36. To comply with the first priority of the anti-degradation policy in Resolution 68-16, Order No. R3-2004-0124 prescribes best management practice to ensure that the discharge does not cause erosion and thereby increase sediment loading to Casmalia Creek. The contribution of the discharge to Casmalia Creek is limited to a 25 percent or less contribution to total creek flow at the time of discharge for all seasons. The 25 percent flow contribution of the discharge was established to

prevent stream bank erosion during high creek flow conditions and when a discharge is initiated. The discharge must be initiated by slowly increasing the flow rate over a 24-hour period until the calculated discharge rate is achieved. The discharge will also be phased out in the same manner over a 10-day period. The Discharger continues to monitor the flow of Casmalia Creek to determine the rate of allowable discharge. The flow restriction was determined by best professional judgment.

37. Order No. R3-2004-0124 requires that no organic constituents may be discharged and there will be no increase in existing TDS and sediment levels in Casmalia Creek due to the discharge. However, the Order contains effluent limitations for inorganic constituents (metals, ammonia, toxicity and odor) that are based on CTR and Basin Plan numeric and narrative water quality objectives rather than background. Consequently, the Order could allow some limited degradation of the receiving water, but not in excess of water quality standards. Before authorizing degradation to occur, the Board must make the findings specified in Resolution 68-16. The Board therefore finds:
- a. While many inorganic constituents (metals) exist in the receiving water, there is not sufficient information available to ascertain, with confidence, the background levels. Also, it is possible that the background levels may exceed water quality objectives. Therefore, some effluent limits for metals and ammonia are established in the Order based on protection of beneficial uses rather than background concentrations.
 - b. The entire discharge will be treated with technologies that are designed to reduce TDS. Water treatment that reduces TDS will also reduce inorganic pollutants. It is highly probable that the levels of inorganic constituents in the discharge will be far lower than the effluent limitations as a result of the treatment technology applied to reduce TDS.
 - c. The Order also recognizes that due to causes that cannot be completely eliminated in advance, the discharge may be toxic, although the receiving waters are not. This could result in some degradation of receiving waters. However, the risk of toxicity has been minimized by stringent effluent limitations for individual pollutants. The high level of treatment required to remove TDS further reduces the risk of toxicity. Additionally, the stringent effluent limitations and monitoring and reporting program for "whole effluent toxicity" testing will reduce this risk to insignificant levels. Finally, the discharge is limited to 25 percent of creek flow, which provides a margin of safety due to the 75 percent dilution of the highly treated effluent.
 - d. There is also an effluent limitation for odor that permits some odor in the discharge. This parameter addresses prevention of nuisance and should not have any impact on beneficial uses. Because of the wide variety of chemicals discharged at the site, it is impossible to predict what odor causing constituents may be in the discharge. Therefore, some odor is unavoidable.
 - e. These minimal risks of degradation are consistent with the maximum benefit to the people of the State because the discharge is unavoidable if the ponds do not have remaining storage capacity during successive wet seasons. The discharge as regulated by this NPDES permit meets these needs by imposing stringent discharge specifications and effluent limits. Furthermore, the high level of treatment required to reduce salts will likely provide protection in addition to that required by Order No. R3-2004-0124. Effluent limitations will ensure that water quality plans and policies will be complied with, the discharge will not unreasonably affect beneficial uses or create a condition of nuisance, the highest water quality consistent with maximum benefit to the people of the State will be maintained, and the best practicable treatment and controls will be required to ensure compliance.
38. The Basin Plan and CTR establish water quality objectives to protect beneficial uses of receiving waters. Effluent limitations based on Basin Plan and CTR water quality objectives are protective of those uses. Water quality objectives for a constituent may vary depending on beneficial uses being protected. In such cases, the most stringent water quality objectives are used as effluent limitations to protect all beneficial uses of the receiving water.

39. The Basin Plan does not contain numeric water quality objectives for every beneficial use in every receiving water body. Effluent limitations in Order No. R3-2004-0124 are based on the most applicable numeric water quality objectives in the Basin Plan (other than those implementing the first priority of Resolution 68-16). Effluent limitations in this NPDES permit that reference the Basin Plan as their source are established to implement numeric water quality objectives in the Basin Plan.
40. There are some constituents in the discharge for which there are no numeric water quality objectives, or for which numeric objectives were not established for all applicable beneficial uses. In such cases, the NPDES permit establishes effluent limitations based on narrative water quality objectives that protect the applicable beneficial uses.
41. The narrative toxicity objective requires:

“All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods as specified by the Regional board.”

Because the discharge has a reasonable potential to exceed this State water quality objective, Order No. R3-2004-0124 contains whole effluent toxicity limits for acute and chronic toxicity. Acute whole effluent toxicity is: “survival of test organisms exposed to 100 percent effluent shall not be significantly reduced when compared to the survival of control organisms, using a t-test based on 99 percent confidence limits.” The daily maximum acute toxicity limit is “Pass” which means no allowable acute toxicity. The chronic whole effluent toxicity limit is 4.0 Toxicity Units chronic (TUc) as a maximum daily limit. This means there shall be no observable adverse effects to test organisms exposed to 25 percent effluent. Compliance with acute and chronic whole effluent toxicity limit will be assessed using the following U.S. EPA promulgated test methods contained in:

- a) *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002* (EPA/821-R-02-012; or latest promulgated U.S. EPA methodology); and
- b) *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002* (EPA/821-R-02-013, 2002; or latest promulgated U.S. EPA methodology).

These manuals contain whole effluent toxicity test methods nationally approved in 40 Code of Federal Regulations, Part 136 for NPDES permit compliance monitoring. Compliance with these whole effluent toxicity limits will ensure excursions above the narrative toxicity objective in the Basin Plan do not occur while protecting warm freshwater habitat and endangered species.

The Basin Plan narrative objective for taste and odor provides:

“Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.”

This water quality objective is not health-based but is based on aesthetics. To implement this objective the NPDES permit imposes numeric effluent limits for certain constituents based on State Secondary Maximum Contaminant Levels. Secondary Maximum Contaminant Levels are established to protect the aesthetic quality of drinking water, including taste and odor. Effluent limitations for iron, manganese, sulfate, and TDS are based on Secondary Maximum Contaminant Levels for this purpose. There is also an effluent limit specifically for odor that is based on a State Secondary Maximum Contaminant level.

42. Animals protected under the Federal Endangered Species Act that have been found in Schuman Creek include the California Red Legged Frog (Threatened) and the Tidewater Goby (Endangered). The Endangered Species Act requires that there is no “taking” of listed species except as authorized by an “incidental take” statement issued in connection with a biological opinion of the U. S. Fish and

Wildlife Service. To protect the Threatened and Endangered species habitat beneficial use of the Casmalia Creek watershed, the NPDES permit must include provisions to ensure that none of these animals and their habitats will be injured by the discharge. In particular, that the discharge will not cause any chronic or acute toxicity to the listed species.

43. Staff of the United States Fish and Wildlife Service and the California Department of Fish and Game were unable to advise the Regional Board of any special sensitivity to pollutants because research to determine sensitivity cannot be done without injuring these animals, thus violating the Endangered Species Act. While there is no data regarding sensitivity of these species to pollutants, Regional Board staff believes the requirements of the NPDES permit are stringent enough that the injury of these Threatened and Endangered species will not be caused by the discharge. Riparian habitat will be protected by the erosion prevention requirements. Adverse impacts due to pollutants will be prevented by the stringent effluent limitations based on non-degradation and water quality objectives protective of aquatic habitat. The high level of treatment proposed by the Discharger will provide additional protection. Finally, the stringent toxicity testing and reporting requirements will provide protection against both acute and chronic toxicity in the effluent (i.e., no significant mortality in acute testing and no observed chronic toxicity for 25 percent effluent).
44. This project is exempt from provisions of the California Environmental Quality Act (Public Resources Code Section 21100 et seq.) pursuant to Section 13389 of the California Water Code.
45. On August 24, 2004, the Regional Board notified the Discharger and interested agencies and persons of its intent to renew these Waste Discharge Requirements for the discharge, and has provided them with an opportunity to submit evidence, comments, and recommendations in writing or at a public hearing.
46. In a public meeting on December 3, 2004, the Regional Board heard and considered all comments and evidence pertaining to the discharge and found this Order consistent with the above findings.
47. A NPDES permit and the privilege to discharge waste into waters of the State is conditional upon the discharge complying with the provisions of Division 7 of the California Water Code and of the Clean Water Act (as amended or as supplemented by implementing guidelines and regulations), and with any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisance. This Order will serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, or amendments thereto.
48. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board (State Board) to review the action in accordance with section 13320 of the California Water Code and Title 23, California Code of Regulations, Section 2050. The petition must be received by the State Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

THEREFORE, IT IS HEREBY ORDERED THAT, the Casmalia Steering Committee and Casmalia Resources, their agents, successors and assigns, pursuant to the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

Note: Throughout these requirements where regulatory citations are not provided, footnotes are listed to indicate the source of water quality based effluent limits. Footnote citations are as follows:

Source of Objective	Footnote
Basin Plan	BP
California Toxics Rule	CTR
Best Professional Judgment	BPJ
Report of Waste Discharge	ROWD
State Secondary Maximum Contaminant Level	SSMCL

State Water Resources Control Board Resolution 68-16, Anti-Degradation Policy	68-16
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A. DISCHARGE PROHIBITIONS

1. Discharge of pollutants to a point other than to Casmalia Creek at the point located at Range 35 West, 120 degrees 33' 07" W, and 34 degrees 51' 35" N is prohibited^{ROWD}.
2. The discharge of any waste not specifically regulated by this Order is prohibited^{BP}.
3. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC) is prohibited. [CWC sec. 13263 and 13377]
4. Adverse affects of the discharge to beneficial uses of water or listed Threatened and Endangered species are prohibited^{BP}.
5. The discharge of radioactive substances is prohibited^{BP}.

B. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

1. Erosion Prevention Measure:
 - a. The discharge shall not exceed 25 percent of the total flow in Casmalia Creek^{BPJ}.
 - b. New discharges shall be initiated over a 24-hour period with a steady incremental increase in flow until a steady discharge rate is achieved. Termination of the discharge shall occur with a steady incremental decrease in flow over a 10-day period^{BPJ}.
 - c. Initiation and termination of discharges shall be minimized to the extent practicable, and reduction of pond water levels shall occur to the maximum extent practicable during a single discharge event^{BPJ}.
2. Representative samples of the discharge shall not contain any detectable quantities of the following categories of organic constituents based on the laboratory methods prescribed in Monitoring and Reporting Program No. R3-2004-0124⁶⁸⁻¹⁶:

Constituent Category
Dioxins/Furans
Phenols
Phthalate Esters
Polychlorinated Biphenyls
Total Petroleum Hydrocarbons
Semi-Volatile Organic Hydrocarbons
Volatile Organic Compounds

3. Representative samples of the discharge shall not exceed the numeric effluent limits listed in the table below.

Constituent	Effluent Limit, Daily Maximum $\mu\text{g/l}$	Hardness (H as CaCO_3 in mg/l) Dependent Effluent Limit (EL $\mu\text{g/l}$) Equations	Source
Aluminum	1000		BP
Ammonia as N	250		BP

Antimony	6.0		BP
Arsenic	50.0		BP
Barium	1000.0		BP
Beryllium	4.0		BP
Boron	750.0		BP
Cadmium	≤ 3.0	EL = 0.0662(H) ^{0.7852}	BP/CTR
Chromium III	≤ 50.0	EL = 4.7636(H) ^{0.819}	BP/CTR
Chromium VI	11.4		CTR
Chromium Total ¹	≤ 50.0		BP
Cobalt	50.0		BP
Copper	≤ 30.0	EL = 0.1823(H) ^{0.8545}	BP/CTR
Fluoride	1000.0		BP
Hardness ²			
Iron	300.0		SSMCL
Lead	≤ 15.0	EL = 0.009(H) ^{1.273}	BP/CTR
Lithium	2500.0		BP
Manganese	50.0		SSMCL
MBAS	200.0		BP
Mercury	0.05		CTR
Molybdenum	10.0		BP
Nickel	≤ 100.0	EL = 1.0601(H) ^{0.846}	BP/CTR
Nitrate (as NO ₃)	45,000.0		BP
Nitrate + Nitrite (sum as Nitrogen)	10,000.0		BP
Nitrite (as nitrogen)	1,000.0		BP
Odor	3 threshold units		SSMCL
Selenium (Total Recoverable)	5.0		CTR
Silver	≤ 100.0	EL = 0.0015(H) ^{1.72}	BP/CTR
Sulfate	250,000.0		SSMCL
Thallium	2.0		BP
Total Dissolved Solids (TDS)	1,000,000.0 ³		BPJ/SSMCL
Vanadium	100.0		BP
Zinc	≤ 200.0	EL = 2.4206(H) ^{0.8473}	BP/CTR

¹ In no instance shall total chromium exceed 50 ug/l regardless of the calculated CTR value for chromium III.

² Hardness of the effluent shall be quantified and expressed as CaCO₃ in mg/l and used to calculate numeric effluent limits for the discharge prior to entering the receiving water. Those instances where calculated CTR hardness derived effluent limits are greater than Basin Plan limits, Basin Plan limits shall be applied to the effluent to comply with water quality standards. If calculated CTR hardness derived effluent limits are less than Basin Plan limits; CTR limits shall be applied to the effluent to comply with water quality standards.

³ The site-specific numeric effluent limit for TDS was established using on best professional judgment for the reasonable protection of water quality. The effluent limit was based on available sampling data used to derive an average TDS concentration in the Casmalia Creek watershed. The derived average concentration is 2,000 mg/l and the effluent limit was established at 1,000 mg/l to provide a margin of safety to prevent further degradation of the receiving water. The established TDS numeric effluent limit also corresponds with the upper limit of the California Secondary Maximum Contaminant Level for protection of aesthetic water quality.

4. Fecal coliform concentrations, based on a minimum of not fewer than five samples for any 30 day period, shall not exceed a log mean of 200 colony forming units (CFU)/100ml, nor shall more than ten percent of total samples during any 30 day period exceed 400 CFU/100ml^{BP}.
5. All waters shall be maintained free of toxic substances in concentrations toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the Regional Board will determine compliance with this objective^{BP}. The following table establishes the acute and chronic toxicity objectives for the discharge:

Constituent	Effluent Limit, Daily Maximum	Source
Acute Toxicity	Pass	<i>Technical Support Document for Water Quality-Based Toxics Control, March 1, 1991</i> (U.S. EPA/505/2-90-001); or latest published U.S. EPA guidance) <i>U.S. EPA Regions 9 and 10 Guidance For Implementing Whole Effluent Toxicity Programs, Final, May 31, 1996;</i> (or latest published U.S. EPA guidance)
Chronic Toxicity	4.0 TUC with an In-Stream Waste Concentration (IWC) of 25 Percent Effluent	<i>Technical Support Document for Water Quality-Based Toxics Control, March 1, 1991</i> (U.S. EPA/505/2-90-001); or latest published U.S. EPA guidance)

6. Compliance with the acute whole effluent toxicity limit will be assessed using the following:
 - a. Mortality data derived from acute toxicity methods in U.S. EPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002* (EPA/821-R-02-012, 2002; or latest promulgated U.S. EPA methodology).
 - b. Statistical procedures for determination of "Pass" or "Fail" from a single concentration (i.e., 100 percent effluent) toxicity test pursuant to *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002* (EPA/821-R-02-012; or latest promulgated U.S. EPA methodology).

C. WHOLE EFFLUENT TOXICITY REQUIREMENTS

1. Test Species and Methods
 - a. The Discharger shall conduct acute toxicity tests on flow-weighted 24-hour composite effluent samples using the water flea, *Daphnia magna* (48-hour test) and the fathead minnow, *Pimephales promelas* (96-hour test). Testing shall be conducted according to the attached monitoring and reporting program or any subsequent revisions thereof.
 - b. The presence of acute toxicity shall be estimated as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and*

Marine Organisms, Fifth Edition, October 2002 (EPA/821-R-02-012; or latest promulgated U.S. EPA methodology).

- c. The Discharger shall conduct short-term chronic toxicity tests on flow-weighted 24-hour composite effluent samples using the water flea, *Daphnia magna* (survival and reproduction test); fathead minnow, *Pimephales promelas* (larval survival and growth test); and green alga, *Selanastrum capricornutum* (growth test). Testing shall be conducted according to the attached monitoring and reporting program or any subsequent revisions thereof.
 - d. The presence of chronic toxicity shall be estimated as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002 (EPA/21-R-02-013, 2002; or latest promulgated U.S. EPA methodology).*
2. The Discharger shall report acute fathead minnow and water flea toxicity test results based on mortality data derived from the acute toxicity test as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002 (EPA/821-R-02-012; or latest promulgated U.S. EPA methodology).* Determination of "Pass" or "Fail" for acute toxicity shall follow statistical procedures in this same guidance.
 3. Definition of Acute Toxicity:

Acute toxicity tests are short-term tests designed to measure the effects of agents on aquatic species during a short portion of their life span. Acute toxicity tests most often measure effects on survival over a 24 to 96 hour period using a concentration-response relationship. Acute toxicity is defined as significantly reduced survival of test organisms at 100 percent effluent compared to a control, using a t-test based on 99 percent confidence.
 4. Definition of Chronic Toxicity:

Chronic toxicity measures both lethal and sub-lethal effects (e.g., reduced growth) to experimental test organisms exposed to an effluent compared to that of the control organisms. The no observable effect concentration (NOEC) is the maximum tested concentration in a medium which does not cause known adverse effects upon chronic exposure in the species in question (i.e. the highest effluent concentration to which organisms are exposed in a chronic test that causes no observable adverse effects on the test organisms; e.g., the highest concentration of a toxicant to which the values for the observed responses are not statistically significantly different from the controls). Examples of chronic toxicity include but are not limited to measurements of toxicant effects on survival, reproduction, and growth. Test results shall be reported in TUC, where $TUC = 100/NOEC$. For this discharge, chronic toxicity is defined by an exceedance of a chronic toxicity discharge limitation specified in Part B. 5 of this Order.
 5. Quality Assurance

The chronic in-stream waste concentration (IWC) for this discharge is 25 percent effluent. Whole effluent toxicity testing shall be conducted using a dilution series of 6.25, 12.5, 25, 50, 75, and 100 percent effluent to derive a toxicity curve for evaluating compliance with the IWC of 25 percent effluent.
 - a. Concurrent testing with reference toxicants shall be conducted.

- b. Reference toxicant tests shall be conducted using the same test conditions as effluent toxicity tests (i.e., same test duration, etc.).
- c. If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods manual, then the Discharger must re-sample and re-test within approximately 14 days.
- d. Control and dilution water should be used as described in the test methods manual. If dilution water is different from culture water, then a second control using culture water shall also be tested.

6. Preparation of Initial Investigation Toxicity Reduction Evaluation (**TRE**) Workplan

The Discharger shall submit to the Executive Officer an initial investigation TRE summary workplan within 90 days of the effective date of this Order. This workplan shall describe steps that the Discharger intends to follow in the event that toxicity is detected, and should include at minimum:

- a. A description of the investigation and evaluation techniques that would be used to identify potential causes/sources of toxicity, effluent variability, treatment system efficiency;
- b. A description of the facility's method of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in operation of the treatment facility.
- c. The contract laboratory for conducting a toxicity identification evaluation (**TIE**) if necessary.

7. Additional (Accelerated) Toxicity Testing

- a. If toxicity is detected, then the Discharger shall conduct six additional tests, one approximately every 14 days, over a 12-week period. Effluent sampling for the first test of the six additional tests shall commence within approximately 96 hours of receipt of the test results exceeding an acute or chronic toxicity discharge limitation;
- b. However, if implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall conduct only the first test of the six additional tests required above. If toxicity (as defined) is not detected in this first test, the Discharger may return to the normal sampling frequency required in Monitoring and Reporting Program No. R3-2004-0124. If toxicity (as defined) is detected in this first test, then Part C.6 of this Order shall apply.
- c. If toxicity is not detected in any of the six additional tests required above, then the Discharger may return to the normal sampling frequency required in Monitoring and Reporting Program No. R3-2004-0124.

8. Toxicity Reduction Evaluation/Toxicity Identification Evaluation (**TRE/TIE**)

- a. If toxicity is detected in two tests in a row or three of the six additional tests, then, based on an evaluation of the test results and additional available information, the

Executive Officer may determine that the Discharger shall initiate a TRE in accordance with the discharger's initial investigation TRE workplan and *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, 1989 (EPA/600/2-88/070; or latest published U.S. EPA guidance). Moreover, the Discharger shall develop a detailed TRE workplan and shall submit this workplan to the Executive Officer for approval. The TRE workplan shall include:

- i. Actions to investigate/identify the cause(s) of toxicity.
 - ii. Actions the Discharger has taken or will take to mitigate the impact of the discharge to correct the noncompliance and to prevent the recurrence of toxicity.
 - iii. A schedule under which these actions will be implemented.
- b. As part of this TRE process, the Discharger may initiate a TIE to identify the cause(s) of toxicity using the test methods manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, 1991 (EPA/600/6-91/003 or latest published U.S. EPA guidance); *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, 1991 (EPA/600/6-91/005F or latest published U.S. EPA guidance); *Methods for Aquatic Toxicity Identification Evaluation, Phase II*, 1993 (EPA/600/R-92/080 or latest published U.S. EPA guidance); and *Methods for Aquatic Toxicity Identification Evaluation Phase III*, 1993 (EPA/600/R-92/081; or latest published U.S. EPA guidance).
- i. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Part C.6 of this Order, then the accelerated testing schedule may be terminated or used as necessary in performing the TRE/TIE.

9. Reporting

- a. The Discharger shall provide oral notification to the Executive Officer within 24 hours of notification of test results indicating acute or chronic toxicity.
- b. The Discharger shall submit a full written report consisting of:
 - i. Toxicity test results.
 - ii. Dates of sample collection and initiation of each toxicity test.
 - iii. Acute and/or chronic toxicity discharge limitations (or values).
- c. Toxicity test results shall be reported according to the test methods manual chapter on Report Preparation. The Discharger shall submit the data according to the schedule in Monitoring and Reporting Program No. R3-2004-0124.
- d. If the initial investigation TRE workplan is used to determine that additional (accelerated) toxicity testing is unnecessary, these results shall be submitted with the monitoring report for the month in which investigations conducted under the TRE workplan occurred.

- e. Following receipt of test results exceeding an acute and/or chronic toxicity discharge limitation (or value), the Discharger shall provide written progress reports to the Executive Officer on a monthly basis of:
 - i. Findings of the TRE or other investigation to identify the cause(s) of toxicity.
 - ii. Actions the Discharger has taken/will take, to mitigate the impact of the discharge and to prevent the recurrence of toxicity.
 - iii. When corrective actions have not been completed, including a TRE, a schedule under which corrective actions will be implemented.
 - iv. The reason for not taking corrective action, if no action has been taken.

10. Reopener

This Order may be modified in accordance with the requirements set forth at 40 CFR, Parts 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new State water quality objectives applicable to whole effluent toxicity.

D. RECEIVING WATER LIMITATIONS (Basin Plan objectives unless otherwise noted)

1. The Discharger shall minimize discharges to Casmalia Creek to the extent feasible. To comply with this limitation, the Discharger must utilize all available on-site water use options prior to discharging to Casmalia Creek. On-site water uses must be approved by the U.S. EPA and comply with applicable or relevant and appropriate requirements. On-site water use options include and are not limited to^{ROWD}:
 - a. Irrigation
 - b. Dust control
 - c. Construction
2. The discharge shall enter Casmalia Creek through a dispersion structure constructed to prevent scouring and erosion.
3. The discharge must not cause:
 - a. The dissolved oxygen concentration of the receiving waters to be depressed below 7.0 mg/l. In the event that the receiving waters are determined to have dissolved oxygen concentration of less than 7.0 mg/l, the discharge shall not depress the dissolved oxygen concentration below the existing level.
 - b. The pH value to be depressed below 7.0 or raised above 8.5.
 - c. The pH of the receiving waters to be changed at any time more than 0.5 units from background.
 - d. The suspended sediment load and suspended sediment discharge rate in Casmalia Creek to be altered by the discharge in such a manner as to cause nuisance or adversely affect beneficial uses.
 - e. The receiving waters to contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

- f. The receiving waters to contain taste or odor producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses,
 - g. Bottom deposits in the receiving waters to the extent that such deposits cause nuisance or adversely affect beneficial uses.
 - h. The receiving waters to contain toxic substances in concentrations that are toxic to, degrade, or that produce detrimental physiological responses in humans or animals or cause acute or chronic toxicity in plants or aquatic life.
 - i. Bioaccumulation of pesticides, fungicides, wood treatment chemicals, or other toxic pollutant concentrations in bottom sediments, plants, or aquatic life to levels harmful to human health.
 - j. The receiving waters to contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water that cause nuisance or that otherwise adversely affect beneficial uses.
 - k. A violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act, and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Regional Board will revise and modify this Order in accordance with such more stringent standards.
 - l. Concentrations of contaminants to occur at levels, which are harmful to human health in, waters which are existing or potential sources of drinking water.
 - m. Concentrations of toxic pollutants in the water column, sediments, or biota that adversely affect beneficial uses.
 - n. Neither acute nor chronic toxicity in the receiving waters.
4. Waters shall be free of:
- a. Changes in turbidity that causes a nuisance or adversely affects beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed 10 percent above natural background.
 - b. Coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of discharge origin shall not be greater than 15 units or 10 percent above natural background color whichever is greater.
5. Waters shall not contain:
- a. Biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
 - b. Oils, greases, waxes, or other similar materials in concentrations resulting in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
 - c. Floating material, including solids, liquids, foams, and scum in concentrations that cause nuisance or adversely affect beneficial uses.

- d. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
6. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

E. GROUNDWATER LIMITATIONS

1. The discharge shall not adversely affect the beneficial uses of groundwater.

F. SOLIDS DISPOSAL

1. All sludges associated with treatment and discharge shall be disposed of in compliance with all applicable laws and regulations.
2. The Discharger is encouraged to comply with the State guidance manual issued by the Department of Health Services titled "Manual of Good Practice for Landspreading of Sewage Sludge" for land spreading of biosolids for soil amendment.

G. PROVISIONS

1. Order No. 99-034, Waste Discharge Requirements NPDES Permit No. CA0049972 is hereby rescinded. Order No. R3-2004-0124 is effective as of the date of its adoption by the Regional Board.

2. Monitoring and Reporting

The Discharger shall comply with Monitoring and Reporting Program No. R3-2004-0124, as specified by the Executive Officer.

3. Standard Provisions and Reporting Requirements
The Discharger shall comply with all applicable or relevant and appropriate requirements of attached "Standard Provisions and Reporting Requirements" dated January 1985.

4. Public Notification

The Discharger shall, at a minimum, post a public notice at the "General Store" in the Town of Casmalia notifying the community of discharge. The "notice of discharge" from the Casmalia Site shall be posted five days prior to initiating a discharge to Casmalia Creek.

5. Demonstration Of Compliance

The Discharger shall demonstrate compliance with numeric, narrative, and whole effluent toxicity requirements prior to discharging to Casmalia Creek. Compliance is defined as meeting the requirements of Order No. R3-2004-0124 as demonstrated by validated laboratory analytical data from two consecutive pre-discharge monitoring events conducted prior to a discharge to Casmalia Creek. The two monitoring events shall occur not less than 48 hours (two days) apart, and not greater than 120 hours (five days) apart. Prior to discharging, a report of compliance shall be submitted to the Executive Officer. Discharges to Casmalia Creek not complying with the provisions herein are a violation of Order No. R3-2004-0124.

Pre-discharge compliance demonstration monitoring shall be conducted for those parameters listed in Table 1 of the attached Monitoring and Reporting Program. The Discharger shall initiate the demonstration of compliance at design flows when the RCF Pond and A-Series Pond collectively reach five feet of freeboard (defined from the lowest surveyed elevation of the pond retaining structures).

The Discharger is responsible for ensuring the safety and integrity of the pond retaining structures by implementing appropriate water management strategies to prevent uncontrolled off-site discharges. This provision does not limit the Discharger's discretion in initiating pre-discharge compliance prior to the ponds reaching the five feet of freeboard action level requirement.

6. Minimum freeboard for all ponds is two feet.
7. Operator Competence

Supervisors and operators of treatment systems and appurtenances related to the discharge shall be trained and experienced in the operation and maintenance of such systems to maintain compliance with effluent limitations and Order conditions contained herein. A statement of operator qualifications shall be submitted for approval by the Executive Officer within 60 days of Order adoption.

I, Roger W. Briggs, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Central Coast Region, on December 3, 2004.

Roger W. Briggs
Executive Officer