4.6 HYDROLOGY AND WATER QUALITY

4.6.1 INTRODUCTION

This Hydrology and Water Quality section of the Draft SEIR describes the existing drainage patterns on the project site, including current stormwater flows and stormwater infrastructure. The section also evaluates potential impacts of the proposed project with respect to changes in on-site drainage patterns, degradation of water quality, changes in groundwater levels, and increases in on- and off-site flooding. Information for the section has been drawn primarily from the Yolo County General Plan[1] and associated EIR,[2] the Cache Creek Area Plan (CCAP) Update FEIR,[3] the 1996 EIR[4] and the following regional and project-specific reports:

- Cache Creek: Hydraulic Analysis of the CEMEX Reach Memorandum, prepared by Cunningham Engineering Corporation (CEC), March 10, 2016.[5]

- Groundwater Assessment for Mining Permit and Reclamation Plan Amendment, prepared by Luhdorff and Scalmanini Consulting Engineers (LSCE), February 2019.[6]

- Estimation of Average High Groundwater Levels CEMEX Madison Plant, Yolo County Memorandum, prepared by Luhdorff and Scalmanini Consulting Engineers (LSCE), November 2016.[7]

- Estimation of Average Low Groundwater Levels CEMEX Madison Plant, Yolo County Memorandum, prepared by Luhdorff and Scalmanini Consulting Engineers (LSCE), April 2017.[8]

- Cache Creek Riparian Depressions Grading and Hydrology Letter Report, Prepared by Zentner Planning & Ecology, December 2017.[9]

- Cache Creek Off-Channel Aggregate Mining Ponds – 2018 Mercury Monitoring, Final Report, Prepared by Slotton and Ayers, May 2020.[10]

[1] Yolo County. 2030 Countywide General Plan. November 10, 2009.

[2] Yolo County. Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH #2008102034. April 2009.

[3] Yolo County. Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH #2017052069. December 2019.

[4] Yolo County, 1996, Final Environmental Impact Report for Solano Long-term Off-Channel Mining Permit Application SCH #96012034, (combined DEIR and Responses to Comments documents).

[5] Cunningham Engineering Corporation, 2016. Hydraulic Analysis of the CEMEX Reach Memorandum. March 10.

[6] Luhdorff and Scalmanini Consulting Engineers (LSCE). 2018. Groundwater Assessment for Mining Permit and Reclamation Plan Amendment. February.

[7] Luhdorff and Scalmanini Consulting Engineers (LSCE). 2016. Estimation of Average High Groundwater Levels CEMEX Madison Plant, Yolo County Memorandum. November.

[8] Luhdorff and Scalmanini Consulting Engineers (LSCE). 2017. Estimation of Average Low Groundwater Levels CEMEX Madison Plant, Yolo County Memorandum. April.

[9] Zentner Planning & Ecology. 2017. Cache Creek Riparian Depressions Grading and Hydrology Letter Report. December.

[10] Slotton, D.G., Ayers, S.M., 2020. Cache Creek Off-Channel Aggregate Mining Ponds – 2018 Mercury Monitoring, Final Report, May.

Government agencies and the public were provided an opportunity to comment on the proposed project in response to the Notice of Preparation (NOP) that provided a preliminary summary of the proposed project. The following comments related to hydrological and water quality resources were expressed at the NOP public scoping meeting held on March 11, 2021 and in a letter submitted by the Central Valley Regional Water Quality Control Board dated March 29, 2021. NOP comment letters are included in Appendix B of this Draft SEIR.

- Potential impacts to both surface and groundwater quality.

  This Draft SEIR section evaluates potential impacts to both surface and groundwater quality associated with the proposed project.

- Potential impacts of mining and post-reclamation lakes on groundwater levels and adjacent wells.

  This Draft SEIR section describes the results of required ongoing groundwater level monitoring activities, which demonstrate that no significant impact to groundwater levels related to the project would occur.

- The letter includes a description of the permits that might be needed depending on the characteristics of the proposed changes to the existing project.

  The CEMEX mine is an entitled and pre-existing project. This Draft SEIR section identifies and evaluates the proposed project changes and identifies, as necessary, any revised or additional impacts related to water quality.

- Compliance with state water quality permitting.

  See response above.

The following subsections describe the existing hydrology and water quality setting of the lower Cache Creek area and specifically in the project site, the applicable regulatory framework, standards of significance used to determine potential environmental effects that may result from implementation of the project, potentially significant impacts associated with relevant substantial changes in the project and/or the circumstances under which the project will be undertaken, and/or new information as defined by CEQA Guidelines Section 15162, and new or different feasible mitigation measures to reduce those impacts to a less-than-significant level, if applicable.

4.6.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides a brief summary of the conditions described in more detail in the above-referenced documents and includes updated information that has become available since those reports were completed. The regional environment described in the 1996 EIR has not changed significantly.

Description of Local Environment

Drainage and Flooding

Cache Creek and Willow Slough are the principal drainage features in the vicinity of the project site. Near the project site, Cache Creek is an incised creek with well-developed banks. In general, flood flows up to and including the 100-year event are contained within the channel banks of the creek. Willow Slough has a broader floodplain and routinely overtops its banks.

Site specific engineering analysis (i.e., HEC-RAS modeling) indicates that the 100-year water surface is effectively contained within Cache Creek along the CEMEX Reach.[11]

Groundwater and Water Quality

Groundwater is an important resource in the entire County. In the CCAP area, uppermost groundwater, which occurs in alluvial deposits, is unconfined at depths ranging from 10 to 75 feet below the ground surface and flows toward the east.

Recognizing that off-channel mining operations would conduct mining operations below the groundwater table (creating the potential to affect groundwater quality), the Yolo County Off-Channel Mining Plan (OCMP) includes numerous policies and mitigation measures, respectively (which were subsequently adopted as part of the Off-Channel Surface Mining Ordinance (Mining Ordinance) designed to protect groundwater quality and reduce any potential impacts to a less-than-significant level. Section 10-4.417 of the Mining Ordinance requires the establishment of an on-site monitoring well network and ongoing collection of groundwater samples.

The groundwater monitoring well network at the project site presently consists of a total of 19 wells, including 15 dedicated observation wells and 4 production wells. Groundwater monitoring has been taking place in on-site wells at the project site since 1990, and the applicant's water quality engineering consultant has been preparing annual monitoring reports with cumulative data evaluation since 2003. Results of the ongoing monitoring efforts provide a site-specific data set that characterizes groundwater conditions in the vicinity of the project through time, including pre-mining conditions and conditions throughout mining and reclamation activities that have occurred to date. The existing data record shows no evidence or indication that the mining and plant operations have caused changes in groundwater levels or quality to date.[12]

4.6.3 REGULATORY CONTEXT

The 1996 EIR included descriptions of federal and state regulatory programs and regulations related to water quality and flooding, including the federal Clean Water Act, the State Regional Water Quality Control Board Basin Plan, SMARA, the County General Plan, and the OCMP and implementing ordinances. The laws and regulations that have been created or substantively updated since 1996 are described below.

[11] Cunningham Engineering Corporation, 2016. Hydraulic Analysis of the CEMEX Reach Memorandum. March 10.

[12] Luhdorff and Scalmanini Consulting Engineers (LSCE). 2018. Groundwater Assessment for Mining Permit and Reclamation Plan Amendment. February.

State Flood Legislation

In 2007, the state legislature enacted six interrelated bills to strengthen the linkage between local land use planning decisions and flood management practices. Senate Bills 5 and 17, and Assembly Bills 5, 70, 156, and 162 added or amended over 25 sections of the Government Code, Health and Safety Code, Public Resources Code, and Water Code. There was considerable overlap between these bills. Together they significantly modified floodplain planning and management at the state, regional, and local levels.

Among other things, these bills created the Central Valley Flood Protection Board (CVFPB), which superseded the State Reclamation Board; required preparation of the Central Valley Flood Protection Plan; established 200-year protection as the minimum urban level of flood protection in the Central Valley; required a variety of local general plan and zoning code amendments; and established restrictions on local approval of development agreements and subdivision maps in flood hazard zones within the Central Valley.

It is important to note, however, that notwithstanding the fact that Yolo County lies within the Central Valley, lower Cache Creek is identified by the state as a Designated Floodway under "Local Control." In correspondence dated July 14, 2005, the State Reclamation Board (since succeeded by the Central Valley Flood Protection Board) confirmed that authority for regulating "encroachments" into Cache Creek in the area upstream of I-5 is held by Yolo County and enforced through the Yolo County Flood Protection Ordinance. Therefore, the Central Valley Flood Protection Board does not have jurisdiction within the CCAP area or at the project site.

Groundwater Legislation

In 2015, a three-bill package known as the Sustainable Groundwater Management Act (SGMA) went into effect. This legislation does the following:

- Provides for sustainable management of groundwater basins;
- Enhances local management of groundwater consistent with rights to use or store groundwater;
- Establishes minimum standards for effective, continuous management of groundwater;
- Provides local groundwater agencies with the authority, technical, and financial assistance needed to maintain groundwater supplies;
- Avoids or minimizes impacts for land subsidence;
- Improves data collection and understanding of groundwater resources and management;
- Increases groundwater storage and removes impediments to recharge; and
- Empowers local agencies to manage groundwater basins, while minimizing state intervention.

SGMA mandates the creation of Groundwater Sustainability Agencies (GSAs) in groundwater basins defined as high or medium priority by the Department of Water Resources (DWR) by June 30, 2017. It also mandates the preparation of Groundwater Sustainability Plans (GSP) by January 2022, and implementation of a GSP for a 20-year period ending in 2042. Much of Yolo County lies within what is referred to as the Yolo Groundwater Subbasin, which is a high-priority basin.

The Water Resources Association of Yolo County (WRA) and Yolo County Farm Bureau have partnered to implement SGMA in Yolo County, and have coordinated with local public agencies for creating a GSA. Since spring 2016, a group of local public agencies have held numerous public meetings and governance workgroup discussions on how to comply with SGMA. These agencies have agreed to partner together and create a single GSA through a joint powers agreement (pursuant to California Government Code 6500).

The CCAP Update, under which the CEMEX mine operates, considered SGMA and opportunities for groundwater recharge among other public benefits of the plan to encourage recharge projects as possible community benefit projects.

2030 Countywide General Plan

Since the 1996 EIR was prepared and certified, the County has updated its General Plan. The 2030 Countywide General Plan contains the following goals, policies, and actions related to hydrology and water quality (these goals, policies, and actions would replace those included and discussed in the 1996 EIR):

Flood Hazards (Health and Safety Element)

Goal HS-2: Flood Hazards. Protect the public and reduce damage to property from flood hazards.

Policy HS-2: Manage the development review process to protect people, structures, and personal property from unreasonable risk from flooding and flood hazards.

Policy HS-2.2: Ensure and enhance the maintenance and integrity of flood control levees.

Policy HS-2.3: Actively update and maintain policies and programs to ensure consistency with State and federal requirements.

Policy HS-2.4: Clearly communicate the risks, requirements, and options available to those who own land and live within the floodplain.

Policy HS-2.6: Maintain the structural and operational integrity of essential public facilities during flooding.

Policy HS-2.7: Manage the floodplain to improve the reliability and quality of water supplies.

Policy HS-2.8: Consider and allow for the ecological benefits of flooding within historic watercourses while balancing public safety and the protection of property.

Action HS-A5: Require a minimum of 100-year flood protection for new construction, and strive to achieve 200-year flood protection for unincorporated communities. Where such levels of protection are not provided, require new development to adhere to the requirements of State law and the County Flood Damage Prevention Ordinance.

Action HS-A12: Evaluate the feasibility of designating land as open space for future bypass systems to prevent flooding hazards. Work with State and Federal agencies to include such bypasses in the Central Valley Flood Protection Plan, where appropriate. Ensure that responsible agencies fund the purchase of flood easements where bypass systems are designated.

Action HS-A13: Review development proposals to ensure that the need to maintain flood control capacity is balanced with consideration of the environmental health of watercourses that convey floodwaters so as not to cause significant erosion, sedimentation, water quality problems, or loss of habitat.

Action HS-A15: Restrict proposed land uses within 500 feet of the toe of any flood control levee, including but not limited to the items listed below, unless site-specific engineering evidence demonstrates an alternative action that would not jeopardize public health or safety:

- Prohibit permanent unlined excavations;
- Large underground spaces (such as basements, cellars, swimming pools, etc.) must be engineered to withstand the uplift forces of shallow groundwater;
- Prohibit below-grade septic leach systems;
- Engineered specifications for buried utility conduits and wiring;
- Prohibit new water wells;
- Prohibit new gas or oil wells;
- Engineered specifications for levee penetrations; and
- Require landscape root barriers within 50 feet of the toe.

Action HS-A21: Private development of levees should be limited to those cases where the construction meets national levee standards, the project is in conformance with the State's comprehensive plan for flood damage reduction, and a public agency agrees to provide long-term maintenance of the levee.

Action HS-A22: Ensure that the upgrade, expansion, or construction of any flood control levee demonstrates that it will not adversely divert flood water or increase flooding.

Action HS-A37: Continue to work with the Flood Control District, the City of Woodland, other appropriate agencies and private landowners to develop strategies and pursue funding for the implementation of projects to improve flood protection for urban and rural residents along lower Cache Creek.

Water Resources (Conservation and Open Space Element)

Policy CO-5.7: Support mercury regulations that are based on good science and reflect an appropriate balancing of sometimes competing public values including health, food chain, reclamation and restoration of Cache Creek, sustainable and economically viable Delta agriculture, necessary mineral extraction, flood control, erosion control, water quality, and habitat restoration.

Policy CO-5.8: Support efforts to reduce the accumulation of methyl mercury in fish tissue in Cache Creek and the Delta, as well as the consumption of fish with high levels of methyl mercury.

Policy CO-5.12: Support the integrated management of surface and groundwater, stormwater treatment and use, the development of highly treated wastewater, and desalinization where feasible.

Policy CO-5.14: Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.

Policy CO-5.17 Require new development to be designed such that nitrates, lawn chemicals, oil, and other pollutants of concern do not impair groundwater quality.

Policy CO-5.21: Encourage the use of water management strategies, biological remediation, and technology to address naturally occurring water quality problems such as boron, mercury, and arsenic.

Policy CO-5.23: Support efforts to meet applicable water quality standards for all surface and groundwater resources.

Policy CO-5.24: Pursue funding to remediate historic mines and other sources of mercury contamination on the Cache Creek watershed.

Policy CO-5.3: Strive to increase artificial recharge of important aquifers with surplus surface water supplies.

Action CO-A95: Work with the Central Valley Regional Water Quality Control Board and other State and federal agencies to implement mercury total maximum daily loads (TMDLs) for Cache Creek and to develop mercury TMDLs for the Delta and other Yolo County waterways where appropriate.

Action CO-A97: Continue to monitor water quality in Lower Cache Creek and annually make the resulting data publicly available.

Off-Channel Mining Plan

The following policies from the adopted Yolo County Off-Channel Mining Plan (OCMP) related to hydrology and water quality are applicable to the proposed project:

Goal 3.2-1 : Promote the conjunctive use of surface and groundwater to maximize the availability of water for a range of uses, including habitat, recreation, agriculture, water storage, flood control, and urban development.

Goal 3.2-2 : Maintain the quality of surface and groundwater so that nearby agricultural productivity and available drinking water supplies are not diminished.

Action 3.4-3: Include a groundwater monitoring program as a condition of approval for any surface mining and reclamation operation that proposes off-channel excavations that extend below the groundwater level. The monitoring program shall require regular groundwater level data, as well as a water quality monitoring program based on a set of developed standards.

Action 3.4-5: Require that surface mining operations demonstrate that proposed off-channel excavations extending below the groundwater level will not adversely affect the producing capacity or water quality of local active wells.

Goal 4.2-1: Recognize that Cache Creek is a dynamic stream system that naturally undergoes gradual and sometimes sudden changes during high flow events.

Goal 4.2-2: Coordinate land uses and improvements along Cache Creek so that the adverse effects of flooding and erosion are minimized.

Off-Channel Surface Mining Ordinance

Title 10, Chapter 4 of the Yolo County Code contains the Off-Channel Surface Mining Ordinance (Mining Ordinance), which provides the following requirements relevant to hydrology and water quality:

Section 10-4.416. Flood protection.

> All off-channel surface mining operations shall be provided with a minimum one-hundred (100) year flood protection. Off-channel excavations shall be designed to minimize the potential for levee breaching and/or pit capture. In addition,

excavations shall be designed to prevent overtopping of channel banks or levees along Cache Creek and all tributaries and drainage channels (including, but not limited to, Willow Slough and Lamb Valley Slough).

The flood protection upgrades shall be designed and constructed to provide the necessary one hundred (100) year protection without creating a net increase of in upstream or downstream flooding elevations. Upstream flooding could be increased if additional levee construction serves to confine flows to a narrow width, thereby increasing the water surface elevation. Downstream flooding could be increased if floodplain storage areas were removed from the drainage system by constructing levees in areas where they did not exist before (or raising levees that are overtopped in floods up to the one hundred (100) year event). Where feasible, alternative or non-structural flood management designs (potentially using detention basins, infiltration galleries, and/or floodplain storage in noncritical areas) shall be incorporated. New development (such as buildings, levees, or dikes) located within the floodplain shall conform to all applicable requirements of the Yolo County Flood Protection Ordinance and the Federal Emergency Management Agency (FEMA).

Section 10-4.417. Groundwater monitoring programs.

All surface mining operations that propose off-channel excavations extending below the groundwater level shall develop and maintain a groundwater monitoring program consisting of two (2) components: water level measurements and water quality testing. A groundwater level monitoring program shall be initiated at least six (6) months prior to the removal of overburden. At a minimum, the groundwater level monitoring program shall consist of three (3) monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit. Monitoring programs for proposed mining areas exceeding one hundred (100) acres (total proposed mining area over the life of the project) shall include one additional well for each one hundred (100) acres of wet pit mining. Therefore, wet pit mining areas of one to ninety-nine (99) acres would require three (3) wells, one hundred (100) to one hundred ninety-nine (199) acres would require four (4) wells, two hundred (200) to two hundred ninety-nine (299) acres would require five (5) wells, and so on. These wells shall be distributed through the vicinity of the wet pit mining area and used for groundwater level measurements. Groundwater levels shall be collected from the monitoring wells on a quarterly basis for six (6) months prior to mining and for the duration of the mining period. All wellheads shall be surveyed with horizontal and vertical control to allow calculation of groundwater elevations and development of groundwater contour maps. Groundwater levels shall be measured with an accuracy of plus or minus 0.01 foot, at minimum.

Water quality in the vicinity of each active wet pit mining location shall be evaluated by analyzing samples from selected monitoring wells (one upgradient and one downgradient) and wet pit surface water sampling locations. Since mining may be

conducted in phases over a relatively long period of time, pit boundaries may change with time. Selection, and installation if necessary, of downgradient monitoring wells, which would be critical to adequately characterize the groundwater quality in the vicinity of the wet pits, shall be submitted by the operator for review and approval by the County. The selected monitoring wells shall be installed and sampled at least six (6) months prior to the removal of overburden. The downgradient wells shall be located as near to the active wet pit mining areas as is practical. The upgradient wells shall be located an adequate distance from the proposed mining area to ensure that the effect of the wet pit on water quality in the well would be negligible. The water samples from the wet pit shall be collected in a manner so as to ensure that they are representative of water quality within the wet pit. The minimum sampling schedule and required analyses are described below.

(a) Groundwater level and pit water surface level measurements shall be performed quarterly in all wells for the duration of mining and reclamation.

(b) For monitoring the groundwater quality of proposed wet pit mining, sample collection and analysis of physical, chemical, and biological constituents shall be conducted according to the following specifications:

(1) *Prior to the removal of overburden.* One upgradient and one downgradient well shall be sampled at least six (6) months prior to the removal of overburden and again at the start of excavation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; total petroleum hydrocarbons (TPH) as diesel and motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX); pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).

(2) *During wet pit mining and active reclamation.* The wet pit shall be sampled semiannually for the duration of mining and active reclamation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).

One upgradient and one downgradient well shall be analyzed, at minimum, for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coil confirmation). The wells shall be sampled according to the following schedule: semiannually for the first two (2) years, and annually every year thereafter.

(3) *After active reclamation.* One year after all heavy equipment work has been completed in the vicinity of the pit, the TPH and BTEX

analyses may be discontinued. The wet pit and one upgradient and one downgradient well shall be sampled and analyzed for pH; temperature; nutrients (phosphorous and nitrogen); total dissolved solids; total coliform (with E. coli confirmation); and biological oxygen demand. This monitoring shall be conducted every two (2) years for a ten (10)-year period after completion of reclamation.

A report to the Agency and Department of Environmental Health shall be submitted within thirty (30) days of the required groundwater testing.

Additional tests and analysis shall be required only if a new condition is recognized that may threaten water quality or if the results of previous tests fall outside allowable ranges. If at any time during the monitoring period, testing results indicate that sampling parameters exceed Maximum Contaminant Levels (MCLs), as reported in the California Code of Regulations, or established background levels, a qualified professional shall evaluate potential sources of the contaminants. The evaluation shall determine the source and process of migration (surface or subsurface) of the contaminants. A report shall be submitted to the regulatory agencies (the Agency, Yolo County Department of Environmental Health, the Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency) which identified, the source of the detected contaminants and specifies remedial actions to be implemented by the operator for corrective action. If it is determined that the source of water quality degradation is off-site, and the County and the RWQCB are in agreement with this conclusion, the operator shall not be responsible for corrective action.

If corrective action is ineffective or infeasible, the responsible party must provide reparation to affected well owners, either by treatment of water at the wellhead or by procurement of an alternate water supply.

If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed in accordance with the California Department of Water Resources Well Standards. If the County, landowner, or other agency wishes to maintain the wells for future water resources evaluation, selected wells may be preserved for this use. Monitoring wells may remain useful for post-mining land uses.

The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrologic reports related to monitoring.

Section 10-4.427. Protection of nearby drinking water wells.

If any off-channel excavation proposes to extend below the level of seasonal high groundwater, then six (6) months prior to the commencement of excavation below the average high groundwater level, the operator shall identify and locate all off-site municipal wells within one thousand (1,000) feet and all domestic wells within five hundred (500) feet of the proposed wet pit mining boundary. If active wells are identified, well characteristics (pumping rate, depth, and locations of screens) shall be determined. If wells are not located within one thousand (1,000) feet, the pre-mining impact evaluation shall be considered complete.

If wet pit mining is proposed within one thousand (1,000) feet of a municipal water supply or within five hundred (500) feet of a domestic water supply well, a capture zone analysis shall be conducted using the U.S. Environmental Protection Agency model WHPA (or a similar model of equal capability and proven reliability, as approved by the Director). The simulation shall assume thirty (30) days of continuous pumping of the water supply well (at its maximum probable yield) under analysis. A mining setback shall be established so that the capture zone and the pit do not coincide. Alternatively, the operator shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). The analysis shall be prepared and signed by a Registered Civil Engineer or Certified Hydrogeologist and submitted to the County for review and approved at least six (6) months prior to the commencement of excavation below the seasonal high groundwater level.

Any new drinking water wells proposed for installation within one thousand (1,000) feet of an approved wet pit mining area shall be subject to review by the Yolo County Environmental Health Department. The County shall determine, based on site-specific hydrogeology and available water quality data, whether to approve the proposed well installation. Analysis of environmental impact for projects in the vicinity of the wet pits shall include consideration of potential water quality impacts on the open water bodies.

The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrogeologic reports related to mining applications.

Section 10-4.429. Setbacks

All off-channel surface mining operations shall comply with the following setbacks:

(a) New processing plants and material stockpiles shall be located a minimum of one thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented;

(b) Soil stockpiles shall be located a minimum of five hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented;

(c) Off-channel excavations shall maintain a minimum one thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50') feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place.

(d) Off-channel excavations shall provide a minimum fifty (50) foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes.

(e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-channel excavations be located within two hundred (200) feet of the existing channel bank. Evaluations of proposed off-channel excavations

within seven hundred (700) feet of the channel bank shall demonstrate, at a minimum, the following:

(1) The two-hundred (200) foot setback area does not include portions of the historically active channel.

(2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less than two-hundred (200) feet wide (measured perpendicular to the active channel).

(3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and extending not less than one thousand (1,000) feet upstream and downstream of the site.

(4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion.

(5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel.

(6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee.

(7) The condition of flood protection structures and the integrity of the land within the approved setback zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506).

Approval of any off-channel mining project located within seven hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that

the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner.

(f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and

(g) Recreational facilities shall be located a minimum of one hundred fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility.

(h) No mining activities shall occur within two thousand (2,000) feet of the community boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo. This setback may be reduced by up to five hundred (500) feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.

Surface Mining Reclamation Ordinance

Title 10, Chapter 5 of the Yolo County Code contains the Surface Mining Reclamation Ordinance (Reclamation Ordinance), which provides the following requirements relevant to hydrology and water quality:

Section 10-5.503. Backfilled Excavations: Groundwater Flow Impacts.

The area of backfilled off-channel excavations extending below the groundwater table shall be minimized in order to reduce changes to groundwater levels and flow. Backfilled pits shall be oriented with regard to the direction of groundwater flow to prevent localized obstructions. If a backfilled off-channel excavation is proposed to penetrate either fifty (50') feet or one-half (½) into the saturated thickness of the shallow aquifer, then at least six (6) months prior to the commencement of excavation below the average high groundwater level, the applicant shall demonstrate in a manner consistent with the Technical Studies that the pit design will not adversely affect active off-site wells within one thousand (1,000) feet of the proposed pit boundary. If the application includes a series of backfilled pits, then the applicant shall also demonstrate that the cumulative effects

of the multiple backfilled pits will not adversely affect groundwater flow, if there are any active off-site wells within one thousand (1,000) feet of the pit boundaries.

The applicant shall demonstrate, using MODFLOW (or a similar model of equal capability and proven reliability, as approved by the Director), that the proposed pit design would not adversely impact active off-site wells within one thousand (1,000) feet of the proposed pit boundary or result in well failure.

Average, historic low groundwater levels, which represent the condition of maximum threat to water levels in the subject well, shall be used for this simulation. If an adverse impact is identified by the MODFLOW (or other approved model) simulation, the mining and reclamation plan shall be modified or the applicant shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County).

Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the required modeling

Section10-5.507. Drainage.

Upon the completion of operations, grading and revegetation shall minimize erosion and convey storm water runoff from reclaimed mining areas to natural outlets or interior basins. The condition of the land shall allow sufficient drainage to prevent water pockets or undue erosion. Natural and stormwater drainage shall be designed so as to prevent flooding on surrounding properties and County rights-of-way.

Drainage and detention facilities within the proposed mining areas and vicinity shall be designed to prevent discharges to the wet pits and surface water conveyances (i.e., creeks and sloughs) from the 20-year/1-hour storm or less. For events greater than the 20-year/1-hour storm, runoff from around the perimeter of the mining areas shall be directed into surface water conveyances. Runoff from within the lowered mining area shall be directed away from wet pits to detention/infiltration areas. Drainage plans shall not rely solely on ditches and berms to direct runoff away from the wet pit. Without proper maintenance, berms and ditches may deteriorate with time and become ineffective. Drainage plans shall emphasize the grading of disturbed areas that results in broad gently slopes that drain away from the pits. Grading plans shall be reviewed by the County to evaluate compliance with drainage plan objectives prior to project approval.

In addition, a restriction shall be recorded on the deed that requires berms and ditches to be permanently maintained in a condition consistent with the final approval. The deed restriction shall require an inspection easement which allows County staff or other authorized personnel access for the inspection of berms and ditches. If the County determines that evidence of damage to those facilities exist, the County shall require that the owner have an inspection report for the property

prepared by a Registered Geologist or Registered Civil Engineer. The inspection report including recommendations for corrective action, if needed, shall be submitted to the Yolo County Community Development Agency. The property owner shall be required to implement recommended corrective action, if any.

Section 10-5.517. Mercury Bioaccumulation in Fish.

As part of each approved long-term mining plan involving wet pit mining to be reclaimed to a permanent pond, lake, or water feature, the operator shall maintain, monitor, and report to the Director according to the standards given in this section. Requirements and restrictions are distinguished by phase of operation as described below.

(a) Mercury Protocols. The Director shall issue and update as needed "Lower Cache Creek Off-Channel Pits Mercury Monitoring Protocols" (Protocols), which shall provide detailed requirements for mercury monitoring activities. The Protocols shall include procedures for monitoring conditions in each pit lake, and for monitoring ambient mercury level in the lower Cache Creek channel within the CCAP planning area, as described below. The Protocols shall be developed and implemented by a qualified aquatic scientist or equivalent professional acceptable to the Director. The protocols shall identify minimum laboratory analytical reporting limits, which may not exceed the applicable response threshold identified in subsection (e) below. Data produced from implementing the Protocols shall meet or exceed applicable standards in the industry.

(b) Ambient Mercury Level. The determination of the ambient or "baseline" fish mercury level shall be undertaken by the County every ten (10) years in years ending in 0. This analysis shall be undertaken by the County for use as a baseline of comparison for fish mercury testing conducted in individual wet mining pits. The work to establish this baseline every ten (10) years shall be conducted by a qualified aquatic systems scientist acceptable to the Director and provided in the form of a report to the Director. It shall be paid for by the mining permit operators on a fair share basis. The results of monitoring and evaluation of available data shall be provided in the report to substantiate the conclusions regarding ambient concentrations of mercury in fish within the lower Cache Creek channel within the CCAP planning area.

(c) Pit Monitoring.

(1) Mining Phase (including during idle periods as defined in SMARA). The operator shall monitor fish and water column profiles in each pit lake once every year during the period generally between September and November for the first five (5) years after a pit lake is created. Fish monitoring should include sport fish where

possible, together with other representative species that have comparison samples from the creek and/or other monitored ponds. Sport fish are defined as predatory, trophic level four fish such as bass, which are likely to be primary angling targets and have the highest relative mercury levels. The requirements of this subsection apply to any pit lake that is permanently wet and navigable by a monitoring vessel. If, in the initial five (5) years after the pit lake is created, the applicable response threshold identified in subsection (e) is exceeded in any three (3) of five (5) monitoring years, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(2) Reclamation Phase. No monitoring is required after mining has concluded, during the period that an approved reclamation plan is being implemented, provided reclamation is completed within the time specified by SMARA or the project approval, whichever is sooner.

(3) Post-Reclamation Phase. After reclamation is completed, the operator shall monitor fish and water column profiles in each pit lake at least once every two (2) years during the period of September-November for ten (10) years following reclamation. Monitoring shall commence in the first calendar year following completion of reclamation activities. If fish monitoring results from the post-reclamation period exceed the applicable response threshold described in subsection (e) or, for ponds that have implemented mitigation management, results do not exhibit a general decline in mercury levels, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(4) Other Monitoring Obligation. If monitoring conducted during both the mining and post- reclamation phase did not identify any exceedances of the ambient mercury level for a particular pit lake, and at the sole discretion of the Director no other relevant factors substantially support that continued monitoring is merited, the operator shall have no further obligations.

(d) Reporting.

(1) Pit Monitoring Results. Reporting and evaluating of subsection (c) pit monitoring results shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Monitoring activities and results shall be summarized in a single

report (addressing all wet pit lakes) and submitted to the Director within six (6) months following each annual monitoring event. The report shall include, at a minimum: (1) results from subsection (b) (pit monitoring), in relation to subsection (a) (ambient mercury levels).

(2) Expanded Analysis Results. Reporting and evaluation of subsection (f) expanded analysis shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Results shall be summarized in a single report (addressing all affected wet pit lakes) and submitted to the Director within six (6) months following each annual monitoring event. The report shall include, at a minimum, the results of the expanded analysis undertaken pursuant subsection (f).

(3) Data Sharing. For pit lakes open to the public, the Director may submit the data on mercury concentrations in pit lake fish to the state Office of Environmental Health Hazard Assessment (or its successor) for developing site-specific fish consumption advisories.

(e) Response Thresholds.

(1) Fish Consumption Advisory. If at any time during any phase of monitoring the pit lake's average sport fish tissue mercury concentration exceeds the Sport Fish Water Quality Objective, as it may be modified by the state over time (as of 2019, the level was 0.2 mg/kg), the operator shall post fish consumption advisory signs at access points around the lake and around the lake perimeter. Catch-and-release fishing may still be allowed. Unless site-specific guidance has been developed by the state's Office of Health Hazard Assessment or the County, statewide fish consumption guidance shall be provided.

(2) Mining Phase Results. If, during the mining phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three (3) of five (5) monitoring years, annual monitoring shall continue for an additional five (5) years, and the operator shall undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(3) Post-Reclamation Phase Results. If during the first ten (10) years of the post-reclamation phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three (3) of five (5) monitoring years, biennial

monitoring shall continue for an additional ten (10) years, and the operator shall undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection(g).

(f) Expanded Analysis.

(1) General. If during the mining or post-reclamation phase, any pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three (3) years, the operator shall undertake expanded analyses. The analysis shall include expanded lake water column profiling (a minimum of five (5) profiles per affected wet pit lake plus one or more nonaffected lakes for control purposes) conducted during the warm season (generally May through October) in an appropriate deep profiling location for each pit lake. The following water quality parameters shall be collected at regular depth intervals, from surface to bottom of each lake, following protocols identified in subsection (a): temperature, dissolved oxygen, conductivity, pH and oxidation-reduction potential (ORP), turbidity or total suspended solids, dissolved organic matter, and algal density by Chlorophyll or Phycocyanin. The initial analysis shall also include one-time collections of fine grained (clay/silt) bottom sediments from a minimum of six (6) well distributed locations for each affected lake, and from one or more nonaffected lakes for control purposes, to be analyzed for mercury and organic content.

(2) Scope of Analysis. The purpose of the expanded analyses is to identify and assess potential factors linked to elevated methylmercury production and/or bioaccumulation in each pit lake. The scope of the expanded analyses shall include monitoring and analysis appropriate to fulfill this purpose, invoking best practices in the industry. In addition to the analyses described in subsection (f)(1) above, the analysis should also consider such factors as: electrical conductivity, bathymetry (maximum and average depths, depth-to-surface area ratios, etc.), and trophic status indicators (concentrations, Secchi depth, chlorophyll a, fish assemblages, etc.). Additional types of testing may be indicated and appropriate if initial results are inconclusive.

(3) Use of Results. The results of the expanded analyses undertaken pursuant to this subsection shall be used to inform the preparation of a lake management plan described below under subsection (g).

(g) Lake Management Activities.

(1) General. If monitoring conducted during the mining or post-reclamation phases triggers the requirement to undertake expanded analysis and prepare and implement a lake management plan, the operator shall implement lake management activities designed by a qualified aquatic scientist or equivalent professional acceptable to the Director, informed by the results of subsection (f). Options for addressing elevated mercury levels may include (A) and/or (B) below at the Director's sole discretion and at the operator's sole expense.

(A) Lake Management Plan. Prepare a lake management plan that provides a feasible, adaptive management approach to reducing fish tissue mercury concentrations to at or below the ambient mercury level. Potential mercury control methods could include, for example: addition of oxygen to or physical mixing of anoxic bottom waters; alteration of water chemistry (modify pH or organic carbon concentration); and/or removal or replacement of affected fish populations. The lake management plan may be subject to external peer review at the discretion of the Director. Lake management activities shall be appropriate to the phase of the operation (e.g., during mining or post-reclamation). The Lake Management Plan shall include a recommendation for continued monitoring and reporting. All costs associated with preparation and implementation of the lake management plan shall be solely those of the operator. Upon acceptance by the Director, the operator shall immediately implement the plan. The lake management plan shall generally be implemented within three (3) years of reported results from the expanded analyses resulting from subsection (f). If lake management does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three (3) years of implementation, at the sole discretion of the Director, the operator may prepare an alternate management plan with reasonable likelihood of mitigating the conditions.

(B) Revised Reclamation Plan. As an alternative to (A), or if (A) does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three (3) years of implementation, at the sole discretion of the Director, the operator shall prepare and submit revisions to the reclamation plan (including appropriate applications and information for permit amendment) to fill the pit lake with suitable fill material to a level no less than five (5) feet

above the average seasonal high groundwater level, and modify the end use to agriculture, habitat, or open space at the discretion of the Director, subject to Article 6 of the Mining Ordinance and/or Article 8 of the Reclamation Ordinance as may be applicable.

(2) Implementation Obligations.

(A) If a lake management plan is triggered during the mining or post- reclamation phase and the subsequent lake management activities do not achieve acceptable results and/or demonstrate declining mercury levels, the operator may propose different or additional measures for consideration by the Director and implementation by the operator, or the Director may direct the operator to proceed to modify the reclamation plan as described in subsection (g)(1)(B).

(B) Notwithstanding the results of monitoring and/or lake management activities during the mining phase, the operator shall, during the post-reclamation phase, conduct the required ten (10) years of biennial monitoring.

(C) If monitoring conducted during the post-reclamation phase identifies three (3) monitoring years of mercury concentrations exceeding the ambient mercury level, the operator shall implement expanded analyses as in subsection (f), to help prepare and implement a lake management plan and associated monitoring.

(D) If subsequent monitoring after implementation of lake management activities, during the post-reclamation phase, demonstrates levels of fish tissue mercury at or below the ambient mercury level for any three (3) monitoring years (i.e., the management plan is effective), the operator shall be obligated to continue implementation of the plan and continue monitoring, or provide adequate funding for the County to do both, in perpetuity.

Section 10-5.524. Post-Reclamation Groundwater Monitoring.

Monitoring during the mining and reclamation period shall be a condition of the permit. The applicant shall ensure that the groundwater monitoring of wet-pit mining continues for (10) years after the completion of reclamation.

4.6.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the changes in the proposed project's potential impacts related to hydrology and water quality. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A hydrology and/or water quality impact is considered significant if the proposed project would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i) result in substantial erosion or siltation on- or off-site;

   ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

   iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

   iv) impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

f) Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to hydrology and water quality.

The standards of significance presented in the 1996 EIR are listed below. For each standard, there is an explanation (*in italics*) describing how the standard from the 1996 EIR is addressed by the updated standards listed above. The 1996 EIR considered that the project would have a

significant effect on hydrology and water quality resources if it would result in: Substantial changes in absorption rates, drainage patterns, or rate and amount of surface runoff.

Changes in absorption rates, drainage patterns, surface runoff are addressed by criterion “c” above.

- Exposure of people or property to water-related hazards, such as flooding (100-year or more frequent flood frequency is the assumed threshold).

  Impacts related to flooding are addressed by criterion “c” above.

- Discharge into surface water or other alteration of surface water quality (e.g., temperature, dissolved oxygen, or turbidity) in excess of applicable waste discharge requirements.

  Impacts associated with alteration of surface water quality are addressed by criteria “a” “c” and “e” above.

- Substantial changes in the amount of surface water in any water body.

  Impacts associated with changes to surface water amounts are addressed by criterion “c” above.

- Substantial changes in currents, or the course or direction of water movements.

  Impacts associated with changes in water movements are addressed by criterion “c” above.

- Substantial changes in the quantity of ground waters either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability.

  Impacts associated with changes in the quantity of groundwater are addressed by criteria “b” and “e” above.

- Altered direction or rate of flow of groundwater.

  Impacts associated with altered rate or flow of groundwater are addressed by criteria “b” and “e” above.

- Impacts to groundwater quality.

  Impacts associated with groundwater quality are addressed by criteria “a,” “b” and “e” above.

- Substantial reduction in the amount of groundwater otherwise available for public water supplies.

Impacts associated with a reduction of groundwater are addressed by criteria "a," "b" and "e" above.

Impacts Identified in the 1996 EIR

The impacts and mitigation measures adopted in the certified 1996 EIR are summarized in Table 4.6-1. The table provides a discussion of the status of each mitigation measure.

Table 4.6-1: 1996 EIR Impact Statements, Mitigation Measures, and Discussion

Impact No.	Impact Statement from 1996 EIR	Mitigation Measures/Discussion
4.4-1	Flooding at the site could cause property damage and injury to on-site workers. This is considered to be a significant impact.	Mitigation Measure 4.4-1a/Condition of Approval No. 44[a] requires: "The applicant must apply for, and receive, a floodplain development permit from Yolo County prior to mining activities within U.S. Department of Housing and Urban Development designated 100-year floodplains, as required by the County General Plan and the County Flood Damage Prevention Ordinance." The County approved Flood Hazard Development Permit No. 96-070 on December 17, 1996, including additional separate conditions with which the operator must comply. This condition is implemented and fully discharged.
4.4-2	Evaporation from a wet pit water surface would represent a loss of water from groundwater storage. This is considered to be a less-than-significant impact.	No mitigation measures were required because annual evaporative losses from reclaimed uses (lake, agriculture, and habitat) would be similar to those anticipated from typical agriculture that would otherwise be taking place on the land, and other beneficial results would occur from reclaimed habitat.
4.4-3	Creation of wet pit lakes exposes surface and groundwater to potential degradation of water quality during the mining and reclamation period. This is considered to be a significant impact.	Mitigation Measure 4.4-3a/Condition of Approval No. 45[a] requires: "Implement the performance standards contained in Sections 10-4.413, 10-4.417, 10-4.427, and 10-4.428 of the County Off-Channel Surface Mining Ordinance; and Sections 10-5.507, 10.5.510, 10-5.519, 10-5.524, 10-5.528, and 10-5.530 of the County Surface Mining Reclamation Ordinance." This mitigation measure will apply to the proposed project and will continue to be implemented.
4.4-4	Creation of wet pit lakes exposes surface and groundwater to potential degradation of water quality during the post-reclamation period. This is considered to be a significant impact.	Mitigation Measure 4.4-4a/Condition of Approval No. 46[a] requires: "Implement the performance standards contained in Section 10-4.413, 10-4.417, 10-4.427, and 10-4.428 of the County Off-Channel Surface Mining Ordinance; and Section 10-5.507, 10-5.510, 10-5.517, 10-5.519, 10-5.524, 10-5.528, 10-5.530, and 10-5.532 of the County Surface Mining Reclamation Ordinance. "

		This mitigation measure will apply to the proposed project and will continue to be implemented.
4.4-5	Creation of wet pit lakes and the subsequent backfilling with fine-grained sediments (processing fines and overburden) could cause impacts to groundwater levels, rate of flow and direction of flow. This is considered to be a less-than-significant impact.	No mitigation measures were required because groundwater levels equilibrate around low permeability zones, and there are no off-site water supply wells within 1,000 feet of the proposed mining areas.
4.4-6	Mining of aggregate and subsequent reclamation of the mined areas would result in alteration of the topography and drainage patterns at the site. This is considered to be a less-than-significant impact.	No mitigation measures were required because alterations in on-site drainage patterns would not significantly change runoff volumes or destinations, and runoff water quality would be improved during periods of storage in onsite detention basins.
4.4-7	Reclaimed lowered agricultural surfaces could be inundated during parts of the year by high groundwater conditions, adversely impacting productivity. This is considered to be a significant impact.	Mitigation Measure 4.4-7a/Condition of Approval No. 47[a] requires: "Pursuant to Section 10-5.516 of the Reclamation Ordinance, all reclaimed lowered agricultural surfaces shall be, at minimum, five feet above average high groundwater. The reclamation plan for the Solano West parcel (Phase 7) shall be modified to meet this requirement." Revised mining and reclamation plans showing the modifications to Phase 7 were submitted to staff on April 24, 1997. However, as a part of the proposed project the applicant proposes to remove Phase 7. If approved, this measure would no longer be applicable.
4.4-8	Increased pumping of groundwater at the processing plant to support the proposed increase in aggregate extraction and processing could adversely affect water supply wells in the vicinity. This is considered to be a less-than-significant impact.	No mitigation measures were required because the pumped groundwater is used in processing and ultimately discharged back to the aquifer at the site. Local perturbations in water levels caused by pumping wells or backfilled pits generally dissipate to negligible levels within 1,000 feet and there are no off-site water supply wells within 1,000 feet of the site.

Source: Baseline Environmental Consulting, 2021.
Notes:
[a] County of Yolo, 2021. Conditions of Approval Mining Permit and Reclamation Plan No. ZF #95-093 CEMEX Mining and Reclamation Project. 2020 Ten-Year Permit Review as modified through February 11, 2021.

Impacts and Mitigation Measures for the Proposed Project

The discussion below examines relevant substantial changes in the project, substantial changes in the circumstances under which the project will be undertaken, and/or new information of substantial importance, as defined by CEQA Guidelines Section 15162. As necessary, this document updates or expands upon impact discussions in the 1996 EIR to evaluate changes associated with the proposed project and describes whether new or revised mitigation is required.

Pursuant to Section 15162 of the CEQA Guidelines, a subsequent EIR is required where proposed changes in the project or changes in the circumstances of the project would require revisions of the previous EIR due to new significant environmental effects or a substantial increase in the severity of previously identified effects. Additionally, a subsequent EIR is required

where there is new information that identifies significant effects not previously discussed, significant effects examined in the prior EIR that will be substantially more severe than previously shown, or mitigation measures or alternatives that are now feasible after previously being found infeasible, or are considerably different from those previously analyzed, that would substantially reduce significant effects but the applicant declines to adopt. Each impact is analyzed to determine whether any of the requirements for a subsequent EIR are met and, if so, additional environmental analysis is provided to evaluate the impacts, mitigation measures, and alternatives, as appropriate.

Impact 4.6-1: The proposed project could violate a water quality standard or waste discharge requirement or otherwise substantially degrade surface or ground water quality. The impact would be *less than significant*.

The project proposes to continue for an additional 20 years mining and reclamation activities as described and evaluated in the 1996 EIR. Potential impacts related to discharge of pollutants and potential effects on water quality would be substantially similar under the proposed project and the conditions evaluated in the 1996 EIR. However, due to ongoing monitoring activities, substantially more water quality information is available now than was available in 1996, when the project was evaluated in the original EIR. In addition, many of the County ordinances that relate to water quality were modified under the CCAP Update. The following discussion describes the water quality data and the relevant updated County ordinances as they pertain to the project.

General Water Quality (Wet Pit Lakes and Groundwater)

The existing County ordinances (as modified by the CCAP Update) include numerous sections that address potential impacts to water quality related the discharge of contaminants to wet pit lakes, including:

> Section 10-3.408 (Hazards and Hazardous Materials) specifies that 1) all heavy equipment used for channel improvements must be kept in good working order to avoid spills and leaks of fuel and oils into the channel; that a stormwater pollution prevention plan must be prepared and implemented to minimize the potential for erosion and chemical spills; and 3) test fill used for bank repair projects to ensure that the fill material does not contain contaminants above applicable thresholds.
>
> Section 10-4.413 (Drainage) specifies that surface water may be directed into mined areas (i.e., wet pits) only designed and engineered in accordance with an approved reclamation plan that includes erosion and sediment control measures.
>
> Section 10-4.415 (Equipment Maintenance) specifies that 1) all internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel; and that 2) fueling and maintenance activities of heavy equipment (except draglines and floating suction dredges) are prohibited within one-hundred (100) feet of open bodies of water during mining and reclamation. All Storm Water Pollution Prevention Plans shall include provisions for releases of fuels during fueling activities for draglines and floating suction dredges.

Section 10-4.417 (Groundwater Monitoring Programs) establishes that groundwater monitoring programs are conducted for all operations that propose off-channel mining excavation that extend below the groundwater table. These monitoring programs require collection and testing of groundwater samples for a wide range of constituents and chemicals. In addition, the ordinance requires measuring of groundwater levels and determination of groundwater flow directions at each site.

Section 10-4.427 (Protection of Nearby Drinking Water Wells) requires that for any off-channel excavation that is proposed to extend below the level of seasonal high, that all local domestic and municipal wells are located and identified, and that groundwater modeling is conducted to determine whether the proposed wet pit mine would adversely affect the wells.

Section 10-4.437 (Wastewater Discharge) specifies that no wastewater will be discharged directly to Cache Creek and that sediment fines generated by aggregate processing be used as off-channel fill or soil amendments.

Section 10-4.438 (Watercraft) specifies that only motorized dredges and draglines shall be allowed on the wet pit lakes. All other fuel-powered (gasoline or diesel) watercraft shall not be used on the wet pit lakes. Electric-powered or non-motorized boats shall be permissible.

Section 10-5.510 (Fencing) requires fencing around mining areas and prevents trespass and illicit discharges of contaminants to wet pits.

The 1996 EIR found that implementation of these measures (which are now regulations) under Mitigation Measure 4.4-4a would ensure that potential impacts related to discharges of contaminants to mining wet pits are mitigated to a level of less than significant. Since the project would continue to be required to comply with these measures (as modified by the CCAP Update), the potential water quality impacts related to discharge of contaminants to the wet pit lakes under the project would continue to be less than significant (after mitigation).

Based on review and analysis conducted by the CCAP Technical Advisory Committee (TAC) as part of the CCAP Update process, the water quality monitoring program under CCAP (both surface water samples collected by the County and samples collected at mining sites by operators) underwent a comprehensive review. The TAC found that there are no obvious long-term trends that indicate water quality degradation, and that most contaminants being tested occur at levels that are below action levels. Consistent with CCAP requirements, groundwater monitoring has been taking place in on-site wells at the project site since 1990. Results of the ongoing monitoring efforts provide a site-specific data set that characterizes groundwater conditions in the vicinity of the project through time, including pre-mining conditions and conditions throughout mining and reclamation activities that have occurred to date. The existing data record shows no evidence or indication that the mining and plant operations have caused changes in

groundwater levels or quality to date.[13] This data confirms that the ongoing measures to protect groundwater quality have been effective.

Methylmercury in Wet Pits

The presence of mercury continues to be a concern for Cache Creek and its surrounding areas.[14] The Cache Creek watershed, particularly the uplands above the Town of Capay, has been the location of extensive historic mercury mining. These historic mines produced a large percentage of mercury used within the United States. Clear Lake and Cache Creek are both listed as impaired waters for mercury on the federal Clean Water Act Section 303(d) list for California. These waters are an identified source of mercury and contribute a substantial portion of total mercury load delivered to the Sacramento-San Joaquin Delta. Mercury contamination originates from past mining activities, geothermal springs, erosion of naturally occurring mercury-containing soils, and atmospheric deposition near Clear Lake and at tributaries to Cache Creek.

Compounds of mercury can be harmful to health. Organic mercury compounds, including methylmercury,[15] are rapidly accumulated by aquatic animals. The concentration of these compounds increases through time in the flesh of fish, a process called bioaccumulation. In addition, the accumulation of organic mercury concentrates along aquatic food chains, reaching high levels at the top predators through a process referred to as biomagnification. Consumption of fish with bioaccumulated levels of methylmercury is the largest source of mercury exposure for humans.

It was recognized by the County at the initiation of the CCAP program in the early 1990s that reclamation of off-channel mining areas within the OCMP planning area to permanent wet pit lakes could present conditions favorable to the conversion of mercury to methylmercury. The concern was that thermal stratification of lake waters and accumulation of organic matter could promote the development of anaerobic conditions in the bottom of the wet pit lakes. Although throughflow of groundwater through the lakes was expected to reduce the potential for severe eutrophication of the lakes, algal growth and detritus from the margins of the lakes were thought capable of providing a significant source of organic materials. It was anticipated that deeper portions of the lakes could be deficient in dissolved oxygen, and that anaerobic conditions could promote the development of significant anaerobic bacteria populations, capable of converting inorganic mercury to methylmercury. The CCAP program was structured to allow for ongoing monitoring of this issue, with required adaptive responses to prevent and control adverse conditions, if any.

Based on the concern that the wet pit lakes could promote methylmercury formation, which could degrade water quality and have harmful effects related to bioaccumulation of mercury in fish and other wildlife, the County established a CCAP mercury monitoring program under Section 10.5.517 of the Reclamation Ordinance. The protocols for monitoring and responding to potential

[13] Luhdorff and Scalmanini Consulting Engineers (LSCE). 2018. Groundwater Assessment for Mining Permit and Reclamation Plan Amendment. February.

[14] Tompkins, M., Frank, P., and Rayburn, A.P., 2017, 2017 Technical Studies and 20-Year Retrospective for the Cache Creek Area Plan, March 17.

[15] Methylmercury is formed through "methylation" of inorganic mercury. Methylation occurs primarily as an assimilative process within the cells of organisms which are able to metabolize available mercury compounds.

presence of methylmercury in the wet pit mines in the CCAP area underwent a comprehensive review as part of the CCAP Update, including a review of all CCAP area mercury monitoring data (sediment, water column, and fish tissue data). Based on approximately 20 years of experience administering the mercury monitoring program and reviewing results and current practices, the County has substantially updated Section 10.5.517 (and added 10-4.420.1) of the Reclamation Ordinance. The project is legally obligated to comply with the provisions of Section 10.5.517 of the Reclamation Ordinance.

Review of the ongoing monitoring program indicate two wet pit lakes at the CEMEX project site have been monitored for methylmercury formation (based on fish tissue sampling results required under Section 10.5-517). These wet pit lakes are referred to as CEMEX Phase 1 and CEMEX Phase 3-4. Figures 3-5 and 3-6 provide the proposed mining plan and phasing.

The CEMEX Phase 1 wet pit lake was found to contain the lowest in fish mercury, overall, of all the CCAP wet pit lakes being monitored (as of 2018).[16] Concentrations were statistically similar to or lower than all corresponding baseline Cache Creek samples of similar size. The Phase 1 Pond was, therefore, not found to be "elevated over baseline in 2 or more consecutive years" (per the criterion in Section 10.5-517), which would trigger consideration of mercury remediation, with seasonal water column profiling as a first step. Based on these results, ongoing monitoring as required under Section 10.5-517 is sufficient to satisfy the ordinance requirements and the potential impact related to the project is less than significant.

The CEMEX Phase 3-4 wet pit lake was last sampled in 2018 for fish tissue the fourth year of sampling).[17] Overall the fish mercury in the Phase 3-4 lake remained elevated over comparable creek baseline samples for the majority of fish sample types. The adult bass, in particular, stayed at levels well above consumption guidelines. This pond was found to be relatively "elevated over baseline in 2 or more consecutive years", which triggered consideration of mercury remediation (per Section 10.5-517). The County will prepare and send a formal notice to CEMEX regarding results in the Phase 3-4 wet pit lake. The notice will require CEMEX to prepare a Lake Management Plan (LMP) per Reclamation Ordinance Section 10.5-517. CEMEX will use the information in the sampling reports prepared by the County to prepare the required LMP for Phase 3-4 wet pit, and per the regulations fish monitoring and water column profiling will continue for five more years. Required periodic analysis of ambient conditions will also continue. Based on specific physical conditions of the Phase 3-4 wet pit, will consider the following options for mercury control: water mixing, management of water chemistry, fish removal, and/or filling the lake.

The LMP must be prepared by qualified aquatic scientist(s) or equivalent professional(s) acceptable to the County. Peer review of the LMP may be required at the discretion of the County. The LMP will be reviewed by the Cache Creek Technical Advisory Committee at a formally noticed public meeting, at which all interested parties will have an opportunity to provide input and ask questions of the expert panel during the course of their review.

[16] Slotton, D.G., Ayers, S.M., 2020. Cache Creek Off-Channel Aggregate Mining Ponds – 2018 Mercury Monitoring, Final Report, May.
[17] Ibid.

Implementation of the approved LMP must occur within three years of reported results from the expanded analyses undertaken pursuant to Section 10-5.517(f). If lake management does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three (3) years of implementation, at the sole discretion of the County Administrator or his/her designee, the operator may be required to prepare an alternate management plan with reasonable likelihood of mitigating the conditions.

After a maximum of three (3) years of implementation of any alternate management plan, at the sole discretion of the County Administrator or his/her designee, the operator shall prepare and submit revisions to the reclamation plan (including appropriate applications and information for permit amendment) to fill the pit lake with suitable fill material to a level no less than five (5) feet above the average seasonal high groundwater level, and modify the end use to agriculture, habitat, or open space at the discretion of the Director, subject to Article 6 of the Mining Ordinance and/or Article 8 of the Reclamation Ordinance as may be applicable.

If subsequent monitoring after implementation of lake management activities, during the post-reclamation phase, demonstrates levels of fish tissue mercury at or below the ambient mercury level for any three (3) monitoring years (i.e., the LMP is effective), the operator must continue implementation of the plan and continue monitoring, or provide adequate funding for the County to do both, in perpetuity (Section 10-5.517(g)(2)(D)).

The proposed project would modify approved lake reclamation reducing the total number of lakes from 4 to 2, increasing their size by approximately 51 acres total, and reducing the linear connectivity of the reclaimed lake habitat to the existing creek corridor by about 2,340 feet (see Table 4.3-2 and Figure 3-21). Under the proposed project, the Phase 3-4 wet pit would be backfilled to reclaimed agriculture rather than to an open lake. Therefore if the project is approved, an LMP would not be required for the Phase 3-4 wet pit.

From a general wildlife perspective, the approved reclamation plan offers more habitat connectivity for wildlife because it borders a longer stretch of the existing creek corridor (see Impact 4.3-6). However, the proposed changes should not adversely affect potential mercury hazards. With regard to potential mercury hazards, the two proposed larger lakes can be expected to function very similarly to the originally proposed design. The proposed lakes remain in the same general location and will contain the same general base concentrations of historic mercury. They will be in the same general orientation to prevailing winds. Most importantly, the maximum depth of 70 feet would not change. Lake depth is important is influencing the natural biogeochemical cycles in the lakes, including the methylmercury cycle (Memorandum from Dr. Darell Slotton to County dated August 13, 2021). Depth and mixing forces (mainly surface winds) determine how and if a lake will stratify into layers during the warm season. The extent of seasonal stratification affects the natural cycles. The changed design will allow for greater mixing from surface winds (“wind fetch”) due to larger surface area, leading to potentially deeper mixing of water columns. This would be beneficial and could result in a reduction for methylmercury production and accumulation in fish. Fish mercury is being monitored closely through the requirements of Section 10-5.517 of the Reclamation Ordinance, and will continue under any design, together with mandatory remediation measures as needed.

The proposed project would increase the acreage of reclaimed wet pit lakes (relative to the reclamation plan considered in the 1996 EIR) and these lakes may be found to contain elevated levels of methylmercury in the future. However, Section 10-5.517 of the Reclamation Ordinance requires specific monitoring activities and lake management efforts (including remediation if necessary) if elevated levels are identified. Therefore, potential impacts related to violation of water quality standards or waste discharge requirements would remain less than significant.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There are no changes in the circumstances under which the project would be undertaken that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Mitigation Measure(s)

None required.

Impact 4.6-2: The proposed project could substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. The impact would be *less than significant.*

Section. 10-5.529 of the OCMP, which states “All permanent wet pits shall be reclaimed to include valuable wildlife habitat as a beneficial use of the water lost from wet pits due to evaporation” indicating that the evaporative losses provide a compensating beneficial impact in creation of new wildlife habitat. Therefore, potential impacts related to evaporation of groundwater under the existing CCAP program (and under the CCAP Update) are less than significant. This finding is consistent with the 1996 EIR which found that loss of water from groundwater storage as a result of evaporation from wet pit lake surfaces was less than significant (Impact 4.2-2). The proposed project would increase the acreage of reclaimed wet pit lakes (relative to the reclamation plan considered in the 1996 EIR) by approximately 57.4 acres, but, based on OCMP policy and findings, the effect on groundwater storage would remain less than significant.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There are no changes in the circumstances under which the project would be undertaken that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Mitigation Measure(s)

None required.

Impact 4.6-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. The impact would be *less than significant.*

In general, the project proposes to continue for an additional 20 years mining and reclamation activities as described and evaluated in the 1996 EIR. Potential impacts related to alteration of drainage patterns would be substantially similar under the proposed project and the conditions evaluated in the 1996 EIR. The 1996 EIR found that although on-site drainage patterns would be altered by the mining project, no significant change in the volume or ultimate destination of the runoff was expected to result from the project. This impact would remain less than significant.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There are no changes in the circumstances under which the project would be undertaken that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Mitigation Measure(s)

None required.

Impact 4.6-4: In flood hazard, tsunami, or seiche zones, result in release of pollutants due to project inundation. The impact would be *less than significant*.

The project site is not susceptible to flooding associated with a tsunami due to its distance from any coastal area. A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as large lakes, bays, or harbors. They can be triggered in an otherwise still body of water by strong winds, changes in atmospheric pressure, earthquakes, or tides. The wet pit lakes at the project site are the only water bodies in the vicinity, but these lakes are too small to generate damaging seiches.

Cache Creek has a history of flooding and has overtopped its banks on numerous occasions. However, site specific engineering analysis (HEC-RAS modeling) indicates that the 100-year water surface is effectively contained within Cache Creek along the CEMEX Reach,[18] indicating that the mining site is protected from the 100-year flood, effectively minimizing the risk that the project could release pollutants to receiving water during flood inundation. This condition is consistent with the requirements of Mining Ordinance Section 10-4.416. Flood Protection, which states:

> All off-channel surface mining operations shall be provided with a minimum one-hundred (100) year flood protection. Off-channel excavations shall be designed to minimize the potential for levee breaching and/or pit capture. In addition, excavations shall be designed to prevent overtopping of channel banks or levees along Cache Creek and all tributaries and drainage channels.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There are no changes in the circumstances under which the project would be undertaken that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

[18] Cunningham Engineering Corporation, 2016. Hydraulic Analysis of the CEMEX Reach Memorandum. March 10.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Mitigation Measure(s)

None required.

Impact 4.6-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The impact would be *less than significant.*

Per the CCAP Update EIR, the following plans are potentially relevant to the proposed CCAP program and the mining project proposed under the CCAP:

- Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fifth Edition (revised May 2018)
- Sustainable Groundwater Management Act – Groundwater Sustainability Plan (under preparation)

The Basin Plan includes (by amendment) a Total Maximum Daily Load (TMDL)[19] for mercury in the Cache Creek basin. This Cache Creek, Bear Creek, and Harley Gulch TMDL for Mercury, which is the principle regulatory driver from the state with respect to mercury in the Cache Creek watershed, was approved as a Basin Plan amendment in 2005 by the Central Valley Regional Water Quality Control Board. The CCAP Update EIR considered potential discharges of mercury from the mining sites into Cache Creek that could potentially be in conflict with the goals of the TMDL (and Basin Plan) and determined that CCAP mining projects would not increase the mercury load to Cache Creek and therefore are consistent with the TMDL and the Basin Plan.

The Groundwater Sustainability Plan, which is currently under preparation and scheduled to be completed in 2022, will identify means and methods necessary for the groundwater basin to achieve a state of sustainable management. The project would not adversely affect sustainable groundwater management because no increases in groundwater extraction or impervious surfaces (which could reduce recharge) are proposed.

[19] On a broad level, the TMDL process leads to a "pollution budget" designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of water quality problems, contributing sources of pollution, and the pollutant load reductions or control actions needed to restore and protect the beneficial uses of an individual waterbody impaired from loading of a particular pollutant. More specifically, a TMDL is defined as the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources, and natural background such that the capacity of the water body to assimilate pollutant loading (the loading capacity) is not exceeded (40 CFR §130.2). In other words, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards which will insure the protection of beneficial uses. This calculation also includes a margin of safety and consideration of seasonal variations. In addition, the TMDL contains the reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There are no changes in the circumstances under which the project would be undertaken that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Mitigation Measure(s)

None required.

Impact 4.6-6: Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to hydrology and water quality. The impact would be *significant.*

Table 4.6-2 below provides an analysis of consistency of the proposed project with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to hydrology and water quality. The policies and regulations identified in the table are those that have been revised or put into effect since the 1996 EIR, as the underlying CEMEX mining project has been determined to be consistent with County program policies and regulations.

In general, the project proposes to continue for an additional 20 years mining and reclamation activities as described and evaluated in the 1996 EIR. Potential impacts related to drainage, water quality and flooding would be substantially similar under the proposed project and the conditions evaluated in the 1996 EIR and would remain less than significant. The 1996 EIR found that the 1996 project was consistent with applicable plans, policies, and regulations. The proposed project is substantially similar to the 1996 project from a hydrology and water quality perspective.

The 2022 annual report of the County TAC (pages 42 and 43) identify previously active channel migration and aggradation proximate to the project site, and the need to monitor and potentially accelerate bar skimming and other channel maintenance activities in the CEMEX reach.

Pursuant to the adaptive management focus of the County's regulations and the ongoing oversight of creek channel conditions by the County TAC, a mitigation measure has been identified to update the 2016 project hydraulic analysis to reflect current and future projected

conditions. With implementation of Mitigation Measure 4.6-6 this impact would be less-than-significant.

Conclusion

There are no proposed changes in the project that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore no revisions to the analysis in the 1996 EIR are required related to this area of impact.

As presented above, there are changes in the circumstances under which the project would be undertaken, related to channel migration and aggradation, that would result in new significant impacts or substantial increase in the severity of previously identified significant impacts, and therefore revisions to the analysis in the 1996 EIR are required related to this area of impact.

There is no new important information relevant to this area of impact that was not previously known at the time of the 1996 EIR. There are no related new significant impacts, more substantial increase in the severity of previously identified significant impacts, previously dismissed mitigation that is now feasible, previously dismissed alternatives that are now feasible, or different more effective alternatives that have emerged or become known.

Implementation of Mitigation Measure 4.6-6 would reduce this impact to a less-than-significant level.

Mitigation Measure 4.6-6

No later than March 2031, the operator shall submit an updated hydraulic analysis of the CEMEX reach that utilizes and incorporates the most recent version of the County hydraulic model including updated/current site data. The model, method, and all inputs shall be reviewed and approved by the County, including review by the TAC geomorphologist and hydraulic engineer. Consistency with Section 10-4.429(e) and other applicable sections of the Mining and Reclamation Ordinances shall be demonstrated.

The analysis shall confirm containment of 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area between the channel boundary and the edge of mining, particularly in areas where prior over-mining has occurred. All recommendations, including bar skimming and other channel maintenance activities consistent with County regulations, the CCAP, and recommendations of the TAC shall be timely implemented by the operator.

Significance After Mitigation

With implementation of mitigation measures identified above, the impact is considered less-than-significant.

Table 4.6-2: Consistency with Applicable Plans, Policies, and Regulations

Policy/Regulation	Consistency Discussion
Yolo County General Plan	
Policy CO-2.31 Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.	As described in the 1996 EIR and the discussion for Impact 4.6-3 above, the ground-disturbing activities associated with the proposed project would not result in adverse effects to water quality. Therefore, the proposed project would be consistent with this policy.
Policy CO-5.14 Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.	Mining is an allowed use in the A-N (Agricultural Intensive) zone; therefore, by definition land use conversion would not occur. The proposed project would include reclamation of the project site to agriculture, habitat, and open space in the form of a lake through which groundwater recharge could occur. Therefore, the proposed project is consistent with this policy.
Action A94 Adopt development design standards that use low-impact development techniques that emulate the natural hydrologic regime and reduce the amount of runoff and associated pollutants. Examples include vegetated swales, landscaped detention basins, permeable paving, and green roofs.	The proposed project would not include discharge of stormwater runoff to Cache Creek or other downstream waterways. All runoff would be captured and treated on-site. Thus, the proposed project is consistent with this action.
Action A97 Continue to monitor water quality in Lower Cache Creek and annually make the resulting data publicly available.	Consistent with Section 10-4.417 of the Mining Ordinance, the project would be required, as a condition of approval, to provide for ongoing monitoring of groundwater quality in the project area over the life of the project. In addition, consistent with Section 10.5-517 of the Reclamation Ordinance, the County, in cooperation with the mining operators, has and will continue to characterize water quality conditions related to methylmercury in Lower Cache Creek. Thus, the proposed project is consistent with this action.
Policy HS-2.7 Manage the floodplain to improve the reliability and quality of water supplies.	See Action HS-A5

Action HS-A5 Require a minimum of 100-year flood protection for new construction, and strive to achieve 200-year flood protection for unincorporated communities. Where such levels of protection are not provided, require new development to adhere to the requirements of State law and the County Flood Damage Prevention Ordinance. (Policy HS-2.1)	As described under Impact 4.6-4, site specific engineering analysis indicates that the 100-year water surface is effectively contained within Cache Creek along the CEMEX reach, indicating that the mining site is protected from the 100-year flood, which minimizes the risk that the project could be impacted by flooding. Thus, the proposed project is consistent with this action. Additionally, Impact 4.6-6 identifies a new mitigation measure requiring submittal of an updated hydraulic analysis confirming 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area.
Off-Channel Mining Plan	
Action 3.2-5. Require that surface mining operations demonstrate that proposed off-channel excavations extending below the groundwater level will not adversely affect the producing capacity or water quality of local active wells.	Consistent with CCAP requirements, groundwater monitoring has been taking place in on-site wells at the project site since before 1996 when the existing mining operation was approved. Results of the ongoing monitoring efforts provide a site-specific data set that characterizes groundwater conditions in the vicinity of the project through time, including pre-mining conditions and conditions throughout mining and reclamation activities that have occurred to date. The existing data record shows no evidence or indication that the mining and plant operations have caused changes in groundwater levels or quality to date. The project proposes no changes in operations that would adversely affect local active wells. Therefore, the project is consistent with this action.
Action 3.4-3. Include a groundwater monitoring program as a condition of approval for any surface mining and reclamation operation that proposes off-channel excavations that extend below the groundwater level. The monitoring program shall require regular groundwater level data, as well as a water quality monitoring program based on a set of developed standards.	See Action 3.2-5. Ongoing groundwater monitoring would be required as a condition of project approval.
Action 4.4-4. Manage activities and development within the floodplain to avoid hazards and adverse impacts on surrounding properties. This shall be accomplished through enforcement of the County Flood Damage Ordinance and ensuring that new development complies with the requirements of the State Reclamation Board.	As described in Action HS-A5, the proposed mining and reclamation area is located outside of the 100-year floodplain associated with Cache Creek. The proposed project would not result in flood-related hazards. Additionally, Impact 4.6-6 identifies a new mitigation measure requiring submittal of an updated hydraulic analysis confirming 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area. Therefore, the project would be consistent with this action.

Action 4.4-5. Allow for the design of spillways or other engineered features that provide controlled flooding of off-channel mining pits during events which exceed the 100-year flood**.**	The results of the hydraulics study prepared for the proposed project by CEC substantiate that the 100-year storm discharges are contained within the Cache Creek channel and would not overtop the creek bank of the waterway in the project vicinity; thus, flooding of the mining pit is unlikely to occur, and the project would be consistent with this action. Additionally, Impact 4.6-6 identifies a new mitigation measure requiring submittal of an updated hydraulic analysis confirming 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area.
Off-Channel Surface Mining Ordinance	
Section 10-4.413 Surface water may be allowed to enter mined areas, through either perimeter berms or ditches and grading, when designed and engineered pursuant to an approved reclamation plan and where effective best management practices (BMPs) to trap sediment and prohibit contamination are included. Appropriate erosion control measures shall be incorporated into all surface water drainage systems. Stormwater drainage systems shall be designed to connect with natural drainages so as to prevent flooding on surrounding properties and County rights-of-way. Storm water runoff from mining areas shall be conveyed to lowered areas (detention basins) to provide detention of runoff generated during a 20- year, one-hour storm event. All drainage conveyance channels or pipes (including spillways for detention areas) shall be designed to ensure positive drainage and minimize erosion. The drainage conveyance system and storm water detention areas shall be designed and maintained in accordance with Best Management Practices for the reduction of pollutants associated with runoff from mined areas. The design and maintenance procedures shall be documented in the Storm Water Pollution Prevention Plan required for mining operations. The drainage system shall be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring. The annual inspection shall be documented in the Annual Mining and Reclamation Report. If the system is found to be functioning ineffectively, the operator shall promptly implement the recommendations of the engineer.	The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. Consistent with Section 10-4.413, the drainage system would be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring.

Section 10-4.416 All off-channel surface mining operations shall be provided with a minimum one-hundred (100) year flood protection. Off-channel excavations shall be designed to minimize the potential for levee breaching and/or pit capture. In addition, excavations shall be designed to prevent overtopping of channel banks or levees along Cache Creek and all tributaries and drainage channels (including, but not limited to, Willow Slough and Lamb Valley Slough). The flood protection upgrades shall be designed and constructed to provide the necessary 100-year protection without creating a net increase of in upstream or downstream flooding elevations. Upstream flooding could be increased if additional levee construction serves to confine flows to a narrow width, thereby increasing the water surface elevation. Downstream flooding could be increased if floodplain storage areas were removed from the drainage system by constructing levees in areas where they did not exist before (or raising levees that are overtopped in floods up to the 100-year event). Where feasible, alternative or non-structural flood management designs (potentially using detention basins, infiltration galleries, and/or floodplain storage in noncritical areas) shall be incorporated. New development (such as buildings, levees, or dikes) located within the floodplain shall conform to all applicable requirements of the Yolo County Flood Protection Ordinance and the Federal Emergency Management Agency (FEMA).	As described under Impact 4.6-4, site specific engineering analysis indicates that the 100-year water surface is effectively contained within Cache Creek along the CEMEX reach, indicating that the mining site is protected from the 100-year flood, which minimizes the risk that the project could be impacted by flooding. Thus, the proposed project is consistent with this action. Additionally, Impact 4.6-6 identifies a new mitigation measure requiring submittal of an updated hydraulic analysis confirming 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area.
Section 10-4.420.1 Each mining area to be reclaimed to a permanent lake as part of each approved long-range mining plan shall be evaluated annually by the operator for five years after the pit fills with groundwater with an intensive fish mercury monitoring program described in Section 10-5.517 of the Reclamation Ordinance.	See Section 10-5.517 below.
Section 10-4.427 If any off-channel excavation proposes to extend below the level of seasonal high groundwater, then six months prior to the commencement of excavation below the average high groundwater level, the operator shall identify and locate all off-site municipal wells within one-thousand (1,000) feet and all domestic wells within five hundred	See discussion of Action 3.2-5.

(500) feet of the proposed wet pit mining boundary. If active wells are identified, well characteristics (pumping rate, depth, and locations of screens) shall be determined. If wells are not located within one-thousand (1,000) feet, the pre-mining impact evaluation shall be considered complete. If wet pit mining is proposed within one-thousand (1,000) feet of a municipal water supply or within five-hundred (500) feet of a domestic water supply well, a capture zone analysis shall be conducted using the U.S. Environmental Protection Agency model WHPA (or a similar model of equal capability and proven reliability, as approved by the Director). The simulation shall assume thirty (30) days of continuous pumping of the water supply well (at its maximum probable yield) under analysis. A mining setback shall be established so that the capture zone and the pit do not coincide. Alternatively, the operator shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). The analysis shall be prepared and signed by a Registered Civil Engineer or Certified Hydrogeologist and submitted to the County for review and approved at least six months prior to the commencement of excavation below the seasonal high groundwater level. Any new drinking water wells proposed for installation within one-thousand (1,000) feet of an approved wet pit mining area shall be subject to review by the Yolo County Environmental Health Department. The County shall determine, based on site-specific hydrogeology and available water quality data, whether to approve the proposed well installation. Analysis of environmental impact for projects in the vicinity of the wet pits shall include consideration of potential water quality impacts on the open water bodies. The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrogeologic reports related to mining applications.	
Section 10-4.429 All off-channel surface mining operations shall comply with the following setbacks: (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless	Based on submitted plans for the project, all material processing plant facilities, stockpiles, and off-channel excavations would be located in compliance with the requirements of this section (see 3-12, in Chapter 3, of this Draft SEIR). Mitigation Measure 4.3-4b of the 1996 EIR established a 200-foot setback for off-channel mining excavations. CEMEX mined beyond the

alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented; (b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented; (c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place. (d) Off-channel excavations shall provide a minimum 50-foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes. (e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-	approved limits at several locations along the northern boundary (i.e., north of Phases 3 and 4, creating encroachments onto the 200-foot Cache Creek setback). At the request of the County CEMEX completed corrective actions and in November of 2018, the County determined that the CEMEX facility was in substantial compliance with SMARA, the Off-Channel Mining Plan (OCMP), and Development Agreement No. 96-287 on the encroachment issue. Additionally, Impact 4.6-6 identifies a new mitigation measure requiring submittal of an updated hydraulic analysis confirming 100-year flood flows, continued control of erosive forces, and continued integrity of the 200-foot setback area.

channel excavations be located within 200 feet of the existing channel bank. Evaluations of proposed off-channel excavations within 700 feet of the channel bank shall demonstrate, at a minimum, the following: (1) The two-hundred (200) foot setback area does not include portions of the historically active channel. (2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less than two- hundred (200) feet wide (measured perpendicular to the active channel). (3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and extending not less than one-thousand (1,000) feet upstream and downstream of the site. (4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion. (5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel. (6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee. (7) The condition of flood protection structures and the integrity of the land within the approved setback zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506). Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project	

operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner. (f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and (g) Recreational facilities shall be located a minimum of one-hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility. (h) No mining activities shall occur within two-thousand (2,000) feet of the community boundaries of Capay, Esparto, Madison, (i) Woodland, and/or Yolo. This setback may be reduced by up to five-hundred (500) feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.	
Section 10-4.437 No wastewater shall be directly discharged to Cache Creek. Sediment fines generated by aggregate processing shall either be used for agricultural soil enhancement, habitat restoration sites, or shall be placed in settling ponds, designed and operated in accordance with all applicable regulations, and used for backfill materials in off-channel excavations. Agricultural tailwater shall be diverted to catchment basins prior to its release to the creek.	Stormwater runoff would not leave the site during, or after completion of, the proposed mining activities. See Impact 4.8-2. Processing water from the project site would be recycled through the use of settling ponds. The discharge of aggregate wash water to the settling ponds would continue to be regulated through WDRs issued by the CVRWQCB. Based on the above, the proposed project would comply with this regulation.

Surface Mining Reclamation Ordinance	
Section 10-5.503 The area of backfilled off-channel excavations extending below the groundwater table shall be minimized in order to reduce changes to groundwater levels and flow. Backfilled pits shall be oriented with regard to the direction of groundwater flow to prevent localized obstructions. If a backfilled off-channel excavation is proposed to penetrate either fifty (50) feet or one-half (1/2) into the saturated thickness of the shallow aquifer, then at least six months prior to the commencement of excavation below the average high groundwater level, the applicant shall demonstrate in a manner consistent with the Technical Studies that the pit design will not adversely affect active off-site wells within one-thousand (1,000) feet of the proposed pit boundary. If the application includes a series of backfilled pits, then the applicant shall also demonstrate that the cumulative effects of the multiple backfilled pits will not adversely affect groundwater flow, if there are any active off-site wells within one-thousand (1,000) feet of the pit boundaries. The applicant shall demonstrate, using MODFLOW (or a similar model of equal capability and proven reliability, as approved by the Director), that the proposed pit design would not adversely impact active off-site wells within one-thousand (1,000) feet of the proposed pit boundary or result in well failure. Average, historic low groundwater levels, which represent the condition of maximum threat to water levels in the subject well, shall be used for this simulation. If an adverse impact is identified by the MODFLOW (or other approved model) simulation, the mining and reclamation plan shall be modified, or the applicant shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the required modeling.	See discussion of Action 3.2-5.

Section 10-5.507 Upon the completion of operations, grading and revegetation shall minimize erosion and convey storm water runoff from reclaimed mining areas to natural outlets or interior basins. The condition of the land shall allow sufficient drainage to prevent water pockets or undue erosion. Stormwater drainage shall be designed so as to prevent flooding on surrounding properties and County rights-of-way. Drainage and detention facilities within the proposed mining areas and vicinity shall be designed to prevent discharges to the wet pits and surface water conveyances (i.e., creeks and sloughs) from the 20-year/1-hour storm or less. For events greater than the 20-year/1-hour storm, runoff from around the perimeter of the mining areas shall be directed into surface water conveyances. Runoff from within the lowered mining area shall be directed away from wet pits to detention/infiltration areas. Drainage plans shall not rely solely on ditches and berms to direct runoff away from the wet pit. Without proper maintenance, berms and ditches may deteriorate with time and become ineffective. Drainage plans shall emphasize grading of disturbed areas that results in broad, gentle slopes that drain away from the pits. Grading plans shall be reviewed by the County to evaluate compliance with drainage plan objectives prior to project approval. In addition, a restriction shall be recorded on the deed that requires berms and ditches to be permanently maintained in a condition consistent with the final approval. The deed restriction shall require an inspection easement which allows County staff or other authorized personnel access for the inspection of berms and ditches. If the County determines that evidence of damage to those facilities exists, the County shall require that the owner have an inspection report for the property prepared by a Registered Geologist or Registered Civil Engineer. The inspection report, including recommendations for corrective action, if needed, shall be submitted to the Director. The property owner shall be required to implement recommended corrective actions, if any.	The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate, contributing to groundwater recharge, or evaporate. At the conclusion of mining, the project site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. New stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site. During mining activities, as well as upon reclamation of the site to agriculture, lake, and habitat uses, the proposed project would not include discharge of stormwater to Cache Creek. In addition, consistent with County requirements, the project site would be subject to ongoing maintenance and monitoring to ensure that the drainage facilities on the reclaimed site continue to function properly. Therefore, the proposed project would comply with this regulation.

Section 10-5.508 The grading of final slopes, the replacement of soil, and associated erosion control measures shall take place prior to November 1 in areas where mining has been completed. To minimize erosion, the finish grading of mining pit slopes above the average seasonal high groundwater level, with the exception of the location of designated haul roads, shall be performed as soon as practical after the mining of overburden and unsaturated aggregate resources has been completed. A drought-tolerant, weed-free mix of native grass species shall be established on slopes prior to November 1 or alternate erosion control (mulch or netting) shall be placed on exposed soil on the slopes prior to this date. Phasing of mining to minimize the length of exposed mining slopes during the rainy season is encouraged.	Conditions of approval ensure compliance with this requirement. Therefore, the proposed project would comply with this regulation.
Section 10-5.511 Reclaimed agricultural surfaces shall be graded to provide adequate field gradients to allow surface/furrow irrigation of crops and allow for adequate storm water drainage.	Conditions of approval ensure that at the conclusion of mining, the project site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. Therefore, the proposed project would be consistent with this regulation.
Section 10-5.516 The final distance between lowered surfaces reclaimed to agriculture and the average high groundwater shall not be less than five (5) feet. The average high groundwater level shall be established for each proposed mining area. The degree of groundwater level fluctuation varies with location throughout the basin and within relatively small areas (proposed mining sites). The determination of the average high groundwater level shall be conducted by a Registered Civil Engineer or Certified Hydrogeologist and shall be based on wet season water level elevation data collected at the proposed site or adjacent areas with similar hydrogeological conditions. Water level records prior to 1977 shall not be used since they would reflect conditions prior to the installation of the Indian Valley Dam. The dam	Agricultural reclamation would use a combination of overburden, processing fines, and topsoil to raise the pit floor elevation above the average high groundwater level. The Reclamation Plan proposes reclaimed agricultural field elevations of a minimum of five feet above the average high groundwater elevations. Therefore, the proposed project would comply with this regulation.

caused a significant change in hydrology of the basin and data collected before its installation shall not be used in estimating current average high groundwater levels. The wells shall be adequately distributed throughout the proposed mining site to reflect spatial variation in groundwater levels and fluctuations.	
Section 10-5.517 As part of each approved long-term mining plan involving wet pit mining to be reclaimed to a permanent pond, lake, or water feature, the operator shall maintain, monitor, and report to the Director according to the standards given in this section. Requirements and restrictions are distinguished by phase of operation as described below. (a) Mercury Protocols. The Director shall issue and update as needed "Lower Cache Creek Off-Channel Pits Mercury Monitoring Protocols" (Protocols), which shall provide detailed requirements for mercury monitoring activities. The Protocols shall include procedures for monitoring conditions in each pit lake, and for monitoring ambient mercury level in the lower Cache Creek channel within the CCAP planning area, as described below. The Protocols shall be developed and implemented by a qualified aquatic scientist or equivalent professional acceptable to the Director. The Protocols shall identify minimum laboratory analytical reporting limits, which may not exceed the applicable response threshold identified in subsection (e) below. Data produced from implementing the Protocols shall meet or exceed applicable standards in the industry. (b) Ambient Mercury Level. The determination of the ambient or "baseline" fish mercury level shall be undertaken by the County every ten years in years ending in 0. This analysis shall be undertaken by the County for use as a baseline of comparison for fish mercury testing conducted in individual wet mining pits. The work to establish this baseline every ten years shall be conducted by a qualified aquatic systems scientist acceptable to the Director and provided in the form of a report to the Director. It shall be paid for by the mining permit operators on a fair-share basis. The results of monitoring and evaluation of available data shall be provided in the report to substantiate the conclusions regarding ambient concentrations of mercury in fish within the lower Cache Creek channel within the CCAP planning area.	See impact 4.6-1. Conditions of approval would be included to require the proposed project to comply with all applicable water quality monitoring and reporting requirements established Section 10-5.517. Therefore, the proposed project would be consistent with this regulation.

(c) Pit Monitoring. (1) Mining Phase (including during idle periods as defined in SMARA). The operator shall monitor fish and water column profiles in each pit lake once every year during the period generally between September and November for the first five years after a pit lake is created. Fish monitoring should include sport fish where possible, together with other representative species that have comparison samples from the creek and/or other monitored ponds. Sport fish are defined as predatory, trophic level four fish such as bass, which are likely to be primary angling targets and have the highest relative mercury levels. The requirements of this subsection apply to any pit lake that is permanently wet and navigable by a monitoring vessel. If, in the initial five years after the pit lake is created, the applicable response threshold identified in subsection (e) is exceeded in any three of five monitoring years, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g). (2) Reclamation Phase. No monitoring is required after mining has concluded, during the period that an approved reclamation plan is being implemented, provided reclamation is completed within the time specified by SMARA or the project approval, whichever is sooner. (3) Post-Reclamation Phase. After reclamation is completed, the operator shall monitor fish and water column profiles in each pit lake at least once every two years during the period of September-November for ten years following reclamation. Monitoring shall commence in the first calendar year following completion of reclamation activities. If fish monitoring results from the post-reclamation period exceed the applicable response threshold described in subsection (e) or, for ponds that have implemented mitigation management, results do not exhibit a general decline in mercury levels, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).	

(4) Other Monitoring Obligation. If monitoring conducted during both the mining and post-reclamation phase did not identify any exceedances of the ambient mercury level for a particular pit lake, and at the sole discretion of the Director no other relevant factors substantially support that continued monitoring is merited, the operator shall have no further obligations. (d) Reporting. (1) Pit Monitoring Results. Reporting and evaluating of subsection (c) pit monitoring results shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Monitoring activities and results shall be summarized in a single report (addressing all wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall include, at a minimum: (1) results from subsection (b) (pit monitoring), in relation to subsection (a) (ambient mercury levels). (2) Expanded Analysis Results. Reporting and evaluation of subsection (f) expanded analysis shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Results shall be summarized in a single report (addressing all affected wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall include, at a minimum, the results of the expanded analysis undertaken pursuant subsection (f). (3) Data Sharing. For pit lakes open to the public, the Director may submit the data on mercury concentrations in pit lake fish to the state Office of Environmental Health Hazard Assessment (or its successor) for developing site-specific fish consumption advisories. (e) Response Thresholds. (1) Fish Consumption Advisory. If at any time during any phase of monitoring the pit lake's average sport fish tissue mercury concentration exceeds the Sport Fish Water Quality Objective, as it may be modified by the state over time (as of 2019, the level was 0.2 mg/kg), the operator shall post fish consumption advisory signs at access points around the lake and around the lake perimeter. Catch-and-release fishing may still be	

allowed. Unless site-specific guidance has been developed by the state's Office of Health Hazard Assessment or the County, statewide fish consumption guidance shall be provided. (2) Mining Phase Results. If, during the mining phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, annual monitoring shall continue for an additional five years, and the operator shall undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g). (3) Post-Reclamation Phase Results. If during the first ten years of the post- reclamation phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, biennial monitoring shall continue for an additional ten years, and the operator shall undertake expanded analysis pursuant to subsection(f) and preparation of a lake management plan pursuant to subsection(g). (f) Expanded Analysis. (1) General. If during the mining or post-reclamation phase, any pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three years, the operator shall undertake expanded analyses. The analysis shall include expanded lake water column profiling (a minimum of five profiles per affected wet pit lake plus one or more nonaffected lakes for control purposes) conducted during the warm season (generally May through October) in an appropriate deep profiling location for each pit lake. The following water quality parameters shall be collected at regular depth intervals, from surface to bottom of each lake, following protocols identified in subsection (a): temperature, dissolved oxygen, conductivity, pH and oxidation-reduction potential (ORP), turbidity or total suspended solids, dissolved organic matter, and algal density by Chlorophyll or Phycocyanin. The initial analysis shall also include one-time collections of fine grained (clay/silt) bottom sediments from a minimum of six well distributed locations for each affected lake, and from one or	

more non-affected lakes for control purposes, to be analyzed for mercury and organic content.

(2) Scope of Analysis. The purpose of the expanded analyses is to identify and assess potential factors linked to elevated bioaccumulation in each pit lake. The scope of the expanded analyses shall include monitoring and analysis appropriate to fulfill this purpose, invoking best practices in the industry. In addition to the analyses described in subsection (f)(1) above, the analysis should also consider such factors as: electrical conductivity, bathymetry (maximum and average depths, depth-to-surface area ratios, etc.), and trophic status indicators (concentrations, Secchi depth, chlorophyll a, fish assemblages, etc.). Additional types of testing may be indicated and appropriate if initial results are inconclusive.

(3) Use of Results. The results of the expanded analyses undertaken pursuant to this subsection shall be used to inform the preparation of a lake management plan described below under subsection (g).

(g) Lake Management Activities

(1) General. If monitoring conducted during the mining or post-reclamation phases triggers the requirement to undertake expanded analysis and prepare and implement a lake management plan, the operator shall implement lake management activities designed by a qualified aquatic scientist or equivalent professional acceptable to the Director, informed by the results of subsection (f). Options for addressing elevated mercury levels may include (A) and/or (B) below at the Director's sole discretion and at the operator's sole expense.

(A) Lake Management Plan. Prepare a lake management plan that provides a feasible, adaptive management approach to reducing fish tissue mercury concentrations to at or below the ambient mercury level. Potential mercury control methods could include, for example: addition of oxygen to or physical mixing of anoxic bottom waters; alteration of water chemistry (modify pH or organic carbon concentration); and/or removal or replacement of affected

methylmercury production and/or fish populations. The lake management plan may be subject to external peer review at the discretion of the Director. Lake management activities shall be appropriate to the phase of the operation (e.g., during mining or post-reclamation). The Lake Management Plan shall include a recommendation for continued monitoring and reporting. All costs associated with preparation and implementation of the lake management plan shall be solely those of the operator. Upon acceptance by the Director, the operator shall immediately implement the plan. The lake management plan shall generally be implemented within three years of reported results from the expanded analyses resulting from subsection (f). If lake management does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator may prepare an alternate management plan with reasonable likelihood of mitigating the conditions. (B) Revised Reclamation Plan. As an alternative to (A), or if (A) does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator shall prepare and submit revisions to the reclamation plan (including appropriate applications and information for permit amendment) to fill the pit lake with suitable fill material to a level no less than five (5) feet above the average seasonal high groundwater level, and modify the end use to agriculture, habitat, or open space at the discretion of the Director, subject to Article 6 of the Mining Ordinance and/or Article 8 of the Reclamation Ordinance as may be applicable. (2) Implementation Obligations. (A) If a lake management plan is triggered during the mining or post-reclamation phase and the subsequent lake management	

activities do not achieve acceptable results and/or demonstrate declining mercury levels, the operator may propose different or additional measures for consideration by the Director and implementation by the operator, or the Director may direct the operator to proceed to modify the reclamation plan as described in subsection (g)(1)(B). (B) Notwithstanding the results of monitoring and/or lake management activities during the mining phase, the operator shall, during the post-reclamation phase, conduct the required ten years of biennial monitoring. (C) If monitoring conducted during the post-reclamation phase identifies three monitoring years of mercury concentrations exceeding the ambient mercury level, the operator shall implement expanded analyses as in subsection (f), to help prepare and implement a lake management plan and associated monitoring. (D) If subsequent monitoring after implementation of lake management activities, during the post-reclamation phase, demonstrates levels of fish tissue mercury at or below the ambient mercury level for any three monitoring years (i.e., the management plan is effective), the operator shall be obligated to continue implementation of the plan and continue monitoring, or provide adequate funding for the County to do both, in perpetuity.	
Section 10-5.524 Monitoring during the mining and reclamation period shall be a condition of the permit. The applicant shall ensure that the groundwater monitoring of wet pit mining continues for (10) years after the completion of reclamation.	Monitoring has been conducted at the project since 1996. A condition of approval will be included to require the project to continue to undertake water quality monitoring consistent with this regulation.

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