Pacific Gas and Electric Company®

Diablo Canyon Power Plant
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PG&E Letter DCL-2009-545

Electronic Submission
E-Mail PDF Formatted File
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October 31, 2009

Roger Briggs
California Regional Water Quality Control Board
Central Coast Region
895 Aerovista, Suite #101
San Luis Obispo, CA 93401-7906

Response: RWQCB Annual Report Review and Evaluation of Diablo Canyon Power Plant (DCPP), San Luis Obispo County, WDID #3 40i018248

Dear Mr. Briggs:

The following provides PG&E's response to the RWQCB's evaluation of storm water quality data submitted by the Diablo Canyon industrial facility for the years 2006-2009. As requested, DCPP has assessed available information regarding confirmed or suspected sources of storm water contamination, and identified additional steps that can be taken to further reduce contaminates attributable to industrial activities. As noted in your agency's evaluation, some contaminate sources are attributable to natural conditions present at the location of the facility, and are not entirely amenable to control or mitigation.

Many of the discharge points sampled receive run-off from precipitation that falls on both industrial and native areas. Additional sampling and analysis is required at multiple locations during the remainder of the current storm season to adequately characterize the likely source of contaminates. Samples of run-off flowing onto industrial areas (run-on) will be compared to discharge samples to further assess the levels of constituents reasonably attributable to natural factors. As an example, background levels of Iron and Total Organic Carbon (TOC) require assessment in storm water that has passed through areas of native soils and vegetation prior to flowing across industrial areas. DCPP will focus efforts to reduce those contaminates attributable to sources or conditions originating from industrial activities.

In addition to the stormwater requirements in its NPDES permit, DCPP entered into the separate General Industrial Storm Water Permit Program in 2006. Prior to and during participation in the program, the facility has undertaken multiple steps to control and improve the quality of storm water discharged from the plant site. These improvements have included the following structural and non-structural Best Management Practices (BMPs):

- Construction of new storm water retention basins and improvement of existing settling basins.
- Rerouting of storm water run-off to retention basins prior to discharge.
- Repairs and improvements to swales and culverts throughout the facility.
- Installation of new or improved curbing along paved roadways.
- Installation of rip-rap fields to reduce run-off velocity and mitigate soil erosion.
- Targeted deployment of straw waddles and movable check dams to capture sediments.
- Targeted street sweeping after project completion on exposed paved areas.

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Attachment 1 provides an itemized assessment of the probable causes for elevated levels of storm water contaminates addressed in the RWQCB evaluation. Planned additional or enhanced BMPs having the highest potential for success in reducing contaminates are also discussed in the assessment. Near-term emphasis for improving storm water quality has been placed on discharges to the upper Diablo Creek per RWQCB request. It should be noted that some trial and error with use of additional BMPs will be required to determine effectiveness.

Site assessments have concluded that natural salts, accumulated wind blown sediments, natural coastal erosion processes, and dislodged soils from the activities of burrowing animals are the primary contributors to site storm water contamination. These issues had previously been identified by DCPP, and earlier BMPs have been targeted to control or mitigate these causes with emphasis on reducing the transport of settleable solids. The following BMPs were enhanced in response to the RWQCB evaluation to further reduce entrainment of surface contaminates and sediments in storm water prior to the first rain event this season (October):

- Street sweeping of exposed pavements in the remote (upper) plant site and shoreline areas.
- Vacuum removal of accumulated windblown and animal generated sediments from run-off pathways.
- Installation of additional (tiered) temporary sediment trapping dams in run-off pathways.
- Repair and implementation of soils controls for recently identified erosion points onto the site.

Enhanced efforts were concentrated on the pathways discharging to Diablo Creek and the Intake Cove. Additional similar efforts to reduce entrainment of contaminates will continue throughput the plant site during the current storm season. Street sweeping has been targeted for significant expansion long term.

More extensive planning and coordination of pavement cleaning throughout the industrial site will be completed prior to the beginning of the 2010-2011 storm season. Expanding and concentrating these efforts just prior to the first major rain event each season has been determined to be the BMP with the highest potential to significantly improve discharge water quality overall for those contaminates not originating with run-on. The enhanced street sweeping and accumulated windblown sediment removal will be fully implemented between August 15th and September 15th prior to the 2010 storm season, and each year subsequently during the same time period. Placement of additional sediment traps and targeted erosion area repairs will remain ongoing BMP improvement activities throughout each storm season.

DCPP remains committed to improving the quality of storm water discharged from the industrial site.

If you have any questions or concerns regarding this matter, or require additional information, please contact Trevor Rebel of my staff at (805) 545-3607.

Sincerely,

Kenneth J. Peters
Station Director – Diablo Canyon Power Plant

2009545/tdr/bkc

Attachments (1)

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Attachment 1

Facility Assessment of Storm Water Parameters Above Benchmark Values
Response to RWQCB Review and Evaluation of DCPP Annual Storm Water Report Data

The following outlines assessment of the source of storm water contaminates detected above benchmark values in DCPP industrial site run-off. Enhanced Best Management Practices (BMPs) to mitigate elevated levels of contaminates that are not primarily attributable to background or natural causes are also discussed.

pH

The data provided from 2006-2009 evidence only five instances where pH was not within the benchmark range. Four data points where slightly to moderately above the target benchmark value of 8.5. The alkaline nature of run-off exposed to native soils at the plant site influences pH, tending to raise analytical values. This was determined to be the most likely contributor in these specific instances based on the locations draining to the sampling points. Site inspections for industrial pollutant sources have been conducted routinely as a part of the storm water management program. Chemical or other sources within the industrial site have not been identified that would contribute significantly to elevated pH levels.

The single low pH value recorded at discharge location 023 in October of 2008 (pH 6.3) has been determined to be the result of bird guano deposited in the areas draining to the discharge from the extensive population of seagulls and pelicans that frequent the location. This is considered a natural contamination source at the facility, especially in the Intake area, that cannot be reasonably controlled.

In general, pH has not been problematic considering the relatively few minor excursions outside of the benchmark range for the parameter. No specific actions have been identified that would significantly improve overall site performance for pH, and the minor excursions periodically experienced at several locations are attributable to non-industrial factors.

Total Suspended Solids (TSS)

Elevated TSS at multiple discharge locations is primarily caused by accumulated wind blown silts, erosion materials from coastal bluffs and slopes, and soils deposited into storm water pathways due to chronic and extensive infestations of burrowing animals. Previous implementation of BMPs at the facility have specifically targeted reduction of settleable solids transport from these identified sources to points of discharge. Of particular concern, burrowing animals inhabit essentially all unpaved areas throughout the plant site with the exception of leveled locations packed with construction aggregate. The rodent population pushes large quantities of soil into adjacent paved areas and storm water swales. Consistent acceptable controls for this particular source of loose soils have been elusive.

The deployment of additional sediment trapping dams, rip-rap fields, and attempts to disrupt burrowing animal habitat will be used ongoing to further reduce TSS caused by run-off soils entrainment.

Implementation of enhanced street sweeping throughout the plant site will be conducted to reduce the contribution to TSS by wind blown sediments, and associated dirt/dust accumulated on paved areas. Additional removal of accumulated wind blown and animal deposited sediments in storm water conveyances will also be conducted just prior to the start of storm seasons, and ongoing throughout.

Specific Conductance (SC)

Elevated specific conductivity throughout the site is primarily the result of wind blown salts and associated grime in the coastal location subjected to periodic moderate to high winds off the ocean. The facility is in agreement that focus on reducing this parameter should be targeted to those discharges farthest from the coastline which outfall to the freshwater Diablo Creek. Coordinated enhanced street sweeping of pavements prior to the initial rain event of each season is considered the action that should have the most significant impact on reducing SC in storm water at the target locations.

A review of site industrial activities determined that no routine plant operation or maintenance process would reasonably be considered a significant contributing factor to the overall elevated SC in site storm water. It is possible however that periodic movement of vehicles and equipment from lower areas to the remote upper areas may result in some transport of salt contaminated exposed surfaces into locations that drain to the upper Diablo Creek. This issue is under further evaluation as of the date of this document.

Notably, the locations that drain to the 008 and 009 discharge outfalls receive the brunt of wind blown sea salt at the 85' elevation of the main plant site. High SC for these discharges can reasonably be attributed to this ongoing salt deposition. Though these locations technically discharge to the Diablo Creek, the outfall points are either directly adjacent to or very near the creek/ocean interface. The outfall of the 008 discharge is adjacent the shoreline and intertidal areas exposed directly to ocean waves and tidal action. The 009 outfall is immediately upstream on the other side of an under road culvert and short stretch of creek. Adverse impacts due to specific conductivity in this region of the creek is questionable. The entire area is ubiquitously exposed to wind driven salt deposition. Therefore, run-off from native soils and vegetation in the area also impart substantial concentrations of salts into the creek, essentially a natural background condition.

It is likely infeasible for the facility to consistently meet the benchmark standards for SC at the lower Diablo Creek discharge points nearest the ocean. Cleaned surfaces are immediately re-exposed to wind-blown natural contaminates. Access to significant portions of the general location are also restricted due to the nuclear site security boundary. Operating 230 Kilovolt (kV) and 500 kV electrical equipment is also present creating personnel safety concerns. Regardless, additional street sweeping of accessible pavements will be conducted in an attempt to reduce the contribution of deposited salts subsequently entrained in run-off from the area.

Total Organic Carbon (TOC)

No routine plant operation or maintenance practices have been identified that would reasonably be considered significant contributing factors to elevated TOC in site storm water. Organic process materials (petroleum lubricants, fuels, laboratory chemicals, waste materials) are all well controlled at the facility, and primarily used and stored within operating equipment or enclosed areas not subject to precipitation influences. Additionally, spills or releases of such materials, even in very small quantities, during transport or transfer at the facility are extremely rare and immediately cleaned-up.

Parking areas have previously been identified as potential sources of organic contaminates that originate from engine leaks and drips. However, discharges from pathways that receive run-off from vehicle parking areas do not consistently display elevated TOC. Additionally, locations subject to very little or no vehicle traffic or parking influences also display variable levels of TOC, in some instances elevated above benchmark levels.

The primary contributor to elevated TOC at multiple discharge locations is likely run-on influenced by exposure to vegetation, and wind distributed organic contaminates originating from the lands and marine environment surrounding the facility. Sampling is planned to characterize actual contribution of run-on. Enhanced street sweeping and sediments removal, in conjunction with efforts to reduce TSS and SC, should also reduce TOC contributors originating from the deposition of wind blown materials throughout the plant site.

Oil and Grease (O&G)

Analysis for O&G was only performed for the 2006-2007 sampling period. Data analysis provided in Table 1 of the RWQCB evaluation incorrectly indicates O&G analysis was also conducted for the 2007-2008 period. The analysis conducted in 2007-2008 was in fact for Total Organic Carbon (TOC), and therefore sampling results above the benchmark for O&G did not actually occur.

Due to the primarily non-detect results for O&G following the 2006-2007 sampling period, facility staff conservatively opted to perform TOC analysis in place of O&G during subsequent storm periods. TOC is considered a more sensitive analytical test. Furthermore, in accordance with General Permit Section B, Subsection 5.c.i., TOC is actually the preferential analysis for storm water quality, with O&G provided as an acceptable substitute. Regardless, in accordance with RWQCB instructions, the facility will implement O&G analysis for at least the 2009-2010 period in addition to ongoing TOC analysis. If O&G results again are very low or primarily non-detectable at the majority of sampling points, the facility will plan to once again discontinue analysis for the parameter in subsequent storm seasons.

Iron

Plant staff is investigating run-on iron concentrations from naturally occurring soils and sedimentary rocks (shale) in Diablo Canyon as a potential source of chronic elevated levels detected at most discharge locations, even when significant potential industrial sources are not evident. Soil results obtained from undisturbed areas above developed industrial zones indicate soil iron concentrations of approximately 15,000 ppm. This iron is also likely entirely in an oxidized state (rust-like) near the surface. Further evaluation is necessary to determine if these native sources of iron are contributing significantly to final site outfall parameters.

Sample data collected over several years shows that those site drainage areas subjected to the least amount of precipitation run-on in fact display lower average levels of iron contamination. This supports the preliminary conclusion that background iron from native soils and rock are a significant contributor.

Iron contaminates originating from corrosion of steel equipment has been identified as a possible contributing source of the elevated iron in samples obtained from storm water sampling points near the Intake. The entire shoreline location is continuously subjected to both salt and moisture from the adjacent ocean which creates a corrosive environment for any exposed metal surface. Evaluation is ongoing to identified sources of transportable contamination that can be removed, sealed, or cleaned and recoated.

Fine loose iron oxide (rust) was discovered deposited on pavements in the Intake area following movement of equipment. Periodic general street sweeping and targeted post project clean-up has been identified as the enhanced BMP with most potential to reduce occurrence of fine iron contaminates on pavements in the area that are attributable to industrial activities.