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Filer:	Anwar Ali
Organization:	NRG Marsh Landing LLC
Submitter Role:	Applicant
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Docketed Date:	12/14/2016

PETITION FOR POST-CERTIFICATION PROJECT MODIFICATION

PAVING PROJECT DESCRIPTION

MARSH LANDING GENERATING STATION
(08-AFC-3C)

Submitted to:

The California Energy Commission

Submitted by:

NRG Marsh Landing LLC

Prepared by:

NRG

December 2016

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APPENDICES

ACRONYMS

AFC	Application for Certification
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CPM	Compliance Project Manager
COC	Condition of Certification
HP	horsepower
IGP	Industrial General Permit
MLGS	Marsh Landing Generating Station
NPDES	National Pollution Discharge Elimination System
RSA	Revised Staff Assessment
SWPPP	Storm Water Pollution Prevention Plan
WEAP	Worker Environmental Awareness Program

1.0 INTRODUCTION

NRG Marsh Landing LLC (NRG Marsh Landing) proposes to implement post-certification maintenance-related modifications to the Marsh Landing Generating Station project (MLGS or project) as licensed in the August 2010, the California Energy Commission (CEC) Commission Decision (Docket 08-AFC-3C). This Petition to Modify entails the installation of additional paving of access roads within the Marsh Landing Generating Station (MLGS). NRG Marsh Landing identified the need to install additional asphalt paving around the material warehouse as a Best Management Practice for storm water erosion and tracking control. NRG Marsh Landing submits the following information in accordance with Title 20 California Code of Regulations (CCR) Section 1769 (Section 1769) for post-certification changes to CEC licensed facilities.

This submittal describes the project modification and analyzes whether it could result in any environmental consequences not previously analyzed. As set forth below, the project modification does not materially change the environmental settings of the MLGS; will not result in significant impacts or impacts that could not otherwise be mitigated to less than significant by the existing license Conditions of Certification (COCs); and does not necessitate any changes to any of the COCs in the Commission Decision.

1.1 INFORMATION REQUIREMENTS FOR POST-CERTIFICATION AMENDMENTS

The following information is provided to address the requirements of the CCR Section 1769. Section 1769 specifies that post-certification requests to modify a project must contain the following information:

(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.

Section 2.0 below provides a complete description of the project modifications. No conditions of certification will be affected by the modification and no new conditions of certification are required.

(B) A discussion of the necessity for the proposed modifications.

An engineering evaluation of the facility identified the need for additional paving around the warehouse building to reduce sediment tracking by delivery trucks during the rainy season. The additional paving will reduce tracking during the rainy season and reduce potential dust emissions during the dry season. Less maintenance will be required year round for track-out control.

(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time.

The project modification is based on project needs identified after the Commission Decision was issued.

(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted.

The project modification does not materially change or undermine the assumptions, rationale, findings, or other bases of the Commission Decision.

(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts.

The project modifications will not have any adverse impacts on the environment, and no measures beyond those already included in the existing Conditions of Certification are required. Attachment A provides an evaluation of stormwater runoff contribution from the new paving areas to the facility bioretention basin. The evaluation concludes that the additional paving will increase runoff by approximately two percent and will not impact the functionality of the bioretention basin. The paving will not create any significant adverse impacts and will not require any additional mitigation.

(F) A discussion of the impact of the modifications on the facility's ability to comply with applicable laws, ordinances, regulations, and standards.

The project modification will not affect the project's ability to comply with applicable laws, ordinances, regulations, and standards.

(G) A discussion of how the modification affects the public.

The paving project will take place within the existing MLGS facility. The work will take place during routine work hours and will be accomplished within a three week work schedule. Surplus soil generated from the project will be non-hazardous and will be shipped to local landfills for use as daily cover. The paving will not be visible from public view perspectives and will not impact the overall view shed. The paving installation will improve water quality and reduce the potential for dust emissions thereby improving the overall project performance. The project modifications will not have any material adverse effect on the public either by installation or operation.

(H) A list of property owners potentially affected by the modification.

The list of property owners within 1,000 feet of the project is provided in Appendix B.

(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.

The project modifications will not have a material adverse effect on nearby property owners, the public or the parties to the application proceeding.

Based on the information and analysis provided herein, we believe that CEC staff can determine that: (1) there is no possibility that the project modifications may have a significant effect on the environment; (2) the project modifications will not necessitate a change or deletion of a condition imposed by the CEC in the Commission Decision; and (3) the project modifications will not make changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards. Therefore, pursuant to Section 1769, Commission approval would not be required for this project modification.

2.0 PROJECT DESCRIPTION

The modification to the project includes the addition of approximately 37,000 square feet of asphalt paving. The new paving will be located near the existing Warehouse Building as shown on Figure 1.The proposed improvement will require grading the area to allow for ten inches of Class 2 Aggregate Base material and four inches of asphalt to be added. The same design and specifications used for the original construction of the MLGS will be used for this installation. The final grade of the new paving will allow

for proper drainage per the existing facility plan. An evaluation of potential impact to stormwater runoff for the new paved area was performed by AECOM and is included in Appendix A.

2.1 NECESSITY OF CHANGE

The project modification was identified by engineering and incorporated into the facility in the facility Storm Water Pollution Prevention Plan (SWPPP) as part of the annual site evaluation and SWPPP update conducted in compliance with the General Permit for Storm Water Discharges Associated with Industrial Activities Order NPDES No. CAS000001 (Industrial General Permit, or "IGP"). In compliance with the IGP the site is evaluated annually for storm water Best Management Practices (BMPs) performance and if any improvements are identified the SWPPP is updated to incorporate these improvements. The asphalt paving is deemed necessary due to excessive sediment tracking inside the facility in the existing roadways. Portions of the existing facility roadways include unpaved dirt roads that provide access to the warehouse for material deliveries. The paving installation will maintain compliance with treatment control design standard required by the IGP for use of the bioretention facility in use onsite.

3.0 ANALYSIS OF PROJECT MODIFICATION

The sections discuss each resource area and potential impacts from construction and operation of the paving modification. Table 1 provides a summary of the environmental analysis of resource areas considered for this modification.

TABLE 1
Environmental Analysis Summary

Resource Area	Analysis
Air Quality	*Due to the short duration of work and limited work area none of the work will trigger permitting with the Bay Area Air Quality Management District. The work will be planned and executed with standard BMPs already required in the facility SWPPP for dust control, and all off road equipment will be required to be Tier 3 or better in compliance with condition of certification (COC) AQ-SC5. The installation of the paving will reduce potential air emissions from driving on dirt roads. No Impact.*
Biological Resources	*Workers will receive Worker Environmental Awareness Program (WEAP) training in accordance with BIO-4. The Project Owner will attempt to schedule the paving installation outside of the nesting season (March 1 to August 31); however, if this is not possible a biological pre-construction survey will be performed in accordance with COC BIO-7. The work and staging areas are not within habitat area and does not impact local flora or fauna. Noise generating activities will be avoided at dawn and dusk. No excavation will be left open overnight without exit ramps installed. No Impact.*

TABLE 1
Environmental Analysis Summary

Resource Area	Analysis
Cultural Resources	*Ground disturbance activities associated with the construction of the new paving will be minimal in depth (less than 2-feet) and will be in previously disturbed and monitored areas of the MLGS project site. No Impact.*
Geology and Paleontology	*Ground disturbance activities associated with the construction of the new paving will be minimal (less than 2-feet in depth) and will be in previously disturbed and monitored areas of the MLGS project site. No Impact.*
Hazardous Materials	*No hazardous materials used or storage modifications made to existing facilities. No Impact.*
Land Use	*No change to land use. No Impact.*
Noise and Vibration	*Installation of paving is all standard mechanical equipment, no noisy equipment required. Work will be limited to standard work hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and Saturday 9:00 a.m. to 5:00 p.m. in compliance with COC NOISE-6. No Impact.*
Public Health	*No change to emissions. No Impact.*
Socioeconomic Resources	*Operation and maintenance activity. The project is of a short duration (3 weeks) and will be staffed by a subcontractor. No Impact.*
Soil and Water Resources	*Grading and paving will be less than 1 acre in size and below the threshold that requires a Construction General NPDES permit for ground disturbance. All work can be accomplished with BMPs in the current facility SWPPP. The installation of the paving will improve storm water quality. No Impact.*
Traffic and Transportation	*No offsite work planned. All equipment will be delivered by permitted transport as needed. No Impact.*
Visual Resources	*The paving area will not be visible from any of the Key Observation Points analyzed in the CEC License. No Impact.*
Waste Management	*No hazardous waste material will be generated from this activity. All other construction type waste will be managed as standard refuse. Any excess soil will be*

TABLE 1
Environmental Analysis Summary

Resource Area	Analysis
	transported to a local landfill for use as daily cover. No Impact.
Worker Safety and Fire Projection	*Contractors will adhere to facility safety practices. No fire systems will be impacted by this work and no "hot work" is planned. No Impact.*

As explained further below, the proposed modification does not result in any changes to the environmental consequences of the MLGS. Furthermore, all impacts are expected to remain less than significant with implementation of Conditions of Certification set forth in the Commission Decision and subsequent amendments.

3.1 AIR QUALITY

NRG Marsh Landing is proposing to install additional asphalt paving for access to the warehouse. Due to the short duration of work and limited work area none of the work will trigger permitting with the Bay Area Air Quality Management District Compliant. The work will be planned and executed with standard BMPs already required in the facility SWPPP for dust control, and all off road equipment will be required to be Tier 3 or better in compliance with COC AQ-SC5. The installation of the paving will reduce potential air emissions from driving on dirt roads. There will be no trenching for installation of utilities.

Therefore, the project modifications would not change the analysis of potential impacts to air quality use as described in AFC Section 7.1, the AFC Amendment and the Commission Decision. Impacts to air quality are expected to be less than significant with implementation of Conditions of Certification.

3.2 BIOLOGICAL RESOURCES

As described in AFC Section 7.2, the AFC Amendment and the Commission Decision, no threatened or endangered plant or wildlife species have been observed during biological resource field surveys of the project site. The project modifications are within the 27-acre project site and would not result in any additional disturbed areas beyond the site.

All construction activities associated with the proposed modification, including laydown and staging areas, will not take place near any biologically sensitive area. The new asphalt will be installed in the interior portion of the site east of Unit 4 near the Warehouse in an area devoid of trees or vegetation. The asphalt will be more than 400 feet south of the MLGS' northern property line and more than 900 feet east of the trees along the MLGS' western property line. The Project Owner proposed to perform the work outside of the nesting season (March 1 through August 31); however, if this cannot be accommodated a pre-construction biological survey will be performed in compliance with BIO-7. Work will be performed between the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and Saturday 9:00 a.m. to 5:00 p.m.in compliance with NOISE-6. Noisy work will be avoided at dawn and dusk hours in compliance with BIO-7. All excavations will be backfilled at the end of the work shift or access ramps will be installed for any potential wildlife that could become trapped outside work hours. All workers will receive WEAP training in compliance with BIO-4.

Therefore, the project modifications would not change the analysis of potential impacts to biological resources previously analyzed by CEC Staff in Section 4.2 of the Revised Staff Assessment, and reviewed and approved by the Commission in Section VI, A of the Commission Decision. Impacts to biological resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision. Thus, the project modifications do not require any changes to the Conditions of Certification to address potential impacts in the area of Biological Resources.

3.3 CULTURAL RESOURCES

The project modifications are within the 27-acre project site and would not result in any additional disturbed areas beyond the site. Ground disturbance activities associated with the construction of the new paving will be minimal and will be in previously disturbed areas of the MLGS project site. As discussed in AFC Section 7.3 and set forth in the Commission Decision, no significant archaeological or historic and architectural (built environmental) resources were identified within the project site or vicinity. Therefore, the project modifications would not change the analysis of potential impacts to cultural resources as described in AFC Section 7.3, the AFC Amendment and the Commission Decision. Impacts to cultural resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.4 LAND USE

The project modifications are within the 27-acre project site and do not alter the analysis of potential impacts to land use resources presented in AFC Section 7.4 and set forth in the Commission Decision which found that the project would not disrupt or divide an established community; would not conflict with the established uses of the area; would be consistent with existing zoning and applicable land use plans, policies, and regulations; and would not affect farmlands. Therefore, the project modifications would not change the analysis of potential impacts to land use as described in AFC Section 7.4, the AFC Amendment and the Commission Decision. Impacts to land use are expected to be less than significant with implementation of conditions of certification.

3.5 NOISE

Paving work will be limited to standard work hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and Saturday 9:00 a.m. to 5:00 p.m. in compliance with COC NOISE-6. The project modification, which consists of installing the new asphalt, would have no operational noise impacts and would not result in significant changes to the potential noise emissions during operations that were modeled and presented in the AFC Amendment. Operational noise impacts are expected to be less than significant with implementation of the Noise Conditions of Certification adopted in the Commission Decision.

3.6 PUBLIC HEALTH

The project modifications, which consist of installing the new asphalt, would have no impacts on public health. The very short duration of the installation is not expected to result in significant long-term public health effects. The modifications do not increase operational emissions of toxic air contaminants. Therefore, the project modifications would not change the analysis of potential impacts to public health as described in the AFC Amendment and the Commission Decision. Impacts to public health are expected to be less than significant with implementation of conditions of certification.

3.7 WORKER SAFETY AND FIRE PROTECTION

The project modifications are within the 27-acre project site and would not change the anticipated workplace hazards or require changes to the safety programs presented in the AFC, the AFC Amendment and set forth in the Commission Decision. No "hot work" is planned for this activity. The Project will continue to comply with the Fire Prevention Plan in accordance with Condition of Certification WORKER SAFETY-2.

Potential impacts to worker safety and health are expected to be less than significant with implementation of Conditions of Certification.

3.8 SOCIOECONOMICS

The project modifications to the project are within the 27-acre project site and would not alter the analysis of potential socioeconomic impacts presented in the 2009 AFC Amendment and in the Commission Decision. The analysis concluded the proposed project would not induce substantial growth or concentration of population; induce substantial increases in demand for public service and utilities; displace a large number of people; disrupt or divide an established community; or result in disproportionate adverse effects on minority or low-income populations. Potential socioeconomics impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.9 SOILS

There will be minimal ground disturbance during installation of the new paving. There will be grading for the installation of 10 inches of road base and 4 inches of asphalt for the 37,000 sq. ft. area. The project modifications are within the 27-acre project site and would not result in increased soil erosion or loss of topsoil and would not alter the analysis of potential impacts to soils as described in the AFC, the AFC Amendment and set forth in the Commission Decision. Therefore, potential impacts to soil resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.10 TRAFFIC AND TRANSPORTATION

The project modifications are within the 27-acre project site and would not alter the analysis of potential traffic and transportation impacts presented in the AFC, the AFC Amendment and the Commission Decision including roadway and intersection levels of service during project operation, and potential impacts to transportation networks. The delivery and demobilization of construction equipment will utilize transportation permits as needed. The construction work is anticipated to require delivery and demobilization of less than ten (10) pieces of equipment. Therefore, potential traffic and transportation impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.11 VISUAL RESOURCES

The project modifications include the addition of new asphalt paving shown in Figure 1. These changes will be visually imperceptible when the project is viewed as a whole. This is because the largest features associated with the project (e.g., exhaust stacks and combustion turbine generators) will not be altered by the paving work. Furthermore, neither would the new asphalt visually dominate the site, nor would it create a visual point of interest due to its size in relation to the other plant facilities. Therefore, these changes will not modify the existing analysis or conclusions presented in Section 7.11 of the AFC or the AFC Amendment. Therefore, potential visual impacts at all seven key observation points are expected to

remain less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.12 HAZARDOUS MATERIALS

There are no changes to the hazardous materials that would be used during operation of the MLGS due to the addition of the new asphalt paving. Therefore, as described in AFC Section 7.12, the AFC Amendment and set forth in the Commission Decision, potential hazardous materials handling impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.13 WASTE MANAGEMENT

The project modification is within the 27-acre project site and there would be no increases in the types, quantities or frequencies of wastes generated by the project during construction or operation of the MLGS. AFC Section 7.13, the AFC Amendment and the Commission Decision include best management practices that will be implemented during operation of the MLGS to manage and minimize the amount of waste generated. Excess soil generated during the grading work will be shipped off site to a local landfill for use as daily cover. Fewer than 100 truck trips are estimated to be required for soil disposal. Waste soil is anticipated to be non-hazardous and therefore able to be transported under bill-of-lading. Therefore, potential waste management impacts are expected to be less than significant with implementation of the COC's adopted in the Commission Decision.

3.14 WATER RESOURCES

There will be no change in the Project's annual use of water. The construction of the additional paving area onsite is less than 1 acres (<43,560 square feet) and does not trigger the need to apply for a General Construction Storm Water NPDES Permit. The BMPs necessary for the installation of the paving already existing in the facility SWPPP and will be implemented throughout the work activity. Only minimal water will be required for grading compaction and dust control.

3.15 GEOLOGIC HAZARDS AND RESOURCES

The project modifications are within the 27-acre project site and would not result in changes to the analysis of geologic hazards or result in significant adverse impacts to the geologic environment. Therefore, as described in AFC Section 7.15, the AFC Amendment and set forth in the Commission Decision, impacts to geologic hazards and resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.16 PALEONTOLOGICAL RESOURCES

The project modifications are within the 27-acre project site and do not result in any additional disturbed areas beyond the site. All ground disturbance activities associated with the construction of the new asphalt paving will be in previously disturbed areas of the MLGS project site. Therefore, these modifications would not change the analysis of impacts to paleontological resources as described in AFC Section 7.16, the AFC Amendment and set forth in the Commission Decision. Impacts to paleontological resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

4.0 REFERENCES

CEC (California Energy Commission), 2010a. Revised Staff Assessment, Marsh Landing Generating Station. June.

CEC (California Energy Commission), 2010b. Commission Decision, Marsh Landing Generating Station. August.

CEC (California Energy Commission), 2012a. Marsh Landing Generating Station, Staff Analysis of Proposed Modifications for Project Design Refinements. Docket Number 64111. March.

CEC (California Energy Commission), 2012b. Notice of Decision, Marsh Landing Generating Station. Docket Number 65074. May 1.

CEC (California Energy Commission), 2012c. Order Approving a Petition to Incorporate Design Refinements Docket Number 65221. May 15.

CEC (California Energy Commission), 2012d. Order Approving a Petition to Modify Condition of Certification BIO-8 Docket Number 68754. December 3.

CEC (California Energy Commission), 2014. Order No. 14-1117-8 - Approving Modifications to Air Quality and Biological Resources Conditions of Certification. Docket Number 203440. November 17.

URS (URS Corporation), 2008. Application for Certification. Marsh Landing Generating Station. May.

URS (URS Corporation), 2009. Application for Certification Amendment. Marsh Landing Generating Station. September.

URS (URS Corporation), 2012. Petition for Approval of Project Design Refinements. Docket Number TN 63551. January.

FIGURES


NRG Marsh Landing
Asphalt
Legend
Asphalt
Google earth
N
100 ft

APPENDIX A

STORMWATER EVALUATION

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Technical Memorandum

To	Joe Moura, NRG Marsh Landing	Page 1
CC	Anne Connell	
Subject	Marsh Landing Stormwater Evaluation for New Asphalt-paved Areas	
	Marsh Landing Generating Station (08-AFC-3C)	
From	Elizabeth Nielsen, PE	
Date	October 28, 2016	

Introduction

This Technical Memorandum presents AECOM's evaluation of the change in stormwater runoff due to new asphalt paving proposed at the Marsh Landing Generating Station (MLGS). The purpose of the evaluation is to identify if the existing onsite bioretention facility has sufficient capacity to receive the additional runoff.

Background

The MLGS is a natural gas-fired simple-cycle combustion turbine facility located near the City of Antioch, in Contra Costa County, California. The existing facility is located on an approximately 27-acre parcel. Stormwater discharging from almost all of the 27-acre MLGS site is treated through a bioretention facility prior to discharge. The bioretention facility is designed to remove contaminants by means of filtration through a layer of engineered soil following the guidelines provided in the Contra Costa County C.3 Guidebook (5th Edition). Industrial runoff that is not suitable to send to the bioretention facility is contained and treated separately (e.g., using oil/water separators) before being sent offsite via the plant's sanitary sewer line.

The MLGS Stormwater Control Plan (GenOn Marsh Landing, LLC, 2013) includes hydrology and hydraulic calculations for the existing drainage and bioretention facilities. The drainage facilities have been sized to convey the 25-year, 24-hour storm event. The bioretention facility has been sized to safely convey the 100-year, 24-hour storm event. Hydrologic analyses included in the stormwater control plan include precipitation and discharge (peak flow) data for the 10-year, 25-year, and 100-year, 24-hour storm events for the 19 drainage areas that comprises the project site.

New asphalt paving is proposed at approximately 0.8 acres (35,000 ft^2) in the "Area 18" drainage area (see Figure 1). Some of this area is already paved. The increase in impervious surface area at the MLGS site is about 0.645 acres.

Methodology

Peak Runoff

Consistent with the methodology used in the MLGS Stormwater Control Plan, the Rational formula was used to estimate the peak flow. The Rational formula, given as:

$$Q = CIA \quad (1)$$

where:

Q = peak discharge in cubic feet per second (cfs)

C = runoff coefficient (unitless)

I = rainfall intensity (inches/hour [in/hr]).

A = drainage area (acres).

Assumptions inherent in the Rational formula include: (1) the peak flow occurs when the entire watershed is contributing to the flow; (2) the rainfall intensity is the same over the entire drainage area; and (3) the rainfall intensity is uniform over a time duration equal to the time of concentration, tc. The time of concentration is the time required for water to travel from the hydraulically most remote point of the basin to the point of interest.

Table 2 shows the input parameters used for the calculations. The data used for existing conditions are consistent with those used in Appendix B, Hydrology and Hydraulic Calculations, of the MLGS Stormwater Control Plan. These data were used without independent verification.

Table 1. Inputs to the Rational Formula

Parameter	Existing	With Asphalt Paving
Runoff coefficient (C)	0.25	0.34
Intensity, 10-year event (in/hr)	2.724	2.724
Intensity, 25-year event (in/hr)	3.431	3.431
Intensity, 100-year event (in/hr)	4.575	4.575
Area 18 drainage Area (acres)	6.02	6.02

The runoff coefficient, C, in Equation 1 is a function of the ground cover and other hydrologic conditions. A composite coefficient can be calculated through areal weighing as follows:

$$C = \sum \frac{C_x A_x}{A_{total}} \quad (2)$$

where:

C and A are as described in Equation 1; and

x = subscript designating values for incremental areas with consistent land cover

Table 2 provides the runoff coefficient used in the hydrology calculations for the Stormwater Control Plan, the change in impervious acreage in Area 18 due to the new asphalt paving, and its effects on the weighted runoff coefficient.

Table 2. Runoff Coefficients for Area 18 drainage

Land Type	Acreage, existing	Runoff coefficient, conditions	Acreage with paving	Runoff coefficient with paving
Pervious	4.86	0.1	4.24	0.1
Impervious	1.16	0.9	1.78	0.9
Net	6.02	0.25	6.02	0.34

Runoff Volume

The hydrograph used in the analysis of Area 18 in Appendix B, Hydrology and Hydraulic Calculations, of the MLGS Stormwater Control Plan had a time of concentration of 23 minutes. The ascending and recession limb of the hydrograph were assumed to be equal and linear. Runoff from storms with higher intensity were assumed to have the same shape and time of concentration with a different peak discharge. The calculation for the runoff volumes from Area 18, with the new asphalt paving, used the same assumptions.

Results

The peak flow and runoff volume for Area 18 was calculated for the 10-year, 25-year, and 100-year events using the methodology described above. The results of these calculations are summarized in Tables 3 and 4. Peak flow to the bioretention facility could increase by up to 2 percent and runoff volumes would also increase. The storage capacities of the bioretention facility is large, and would likely be able to hold the 25-year event under both existing conditions and after additional portions of Area 18 are paved. The volume that can be conveyed during a storm event through the basin is greater than the volume of the basin because water will be flowing out as water is flowing in. Therefore, the bioretention facility would likely be able to convey the 100-year event in both existing and proposed conditions. The increased runoff volume would not change the performance of the basin during these large flow events.

Table 3. Change in Peak Flow in Area 18

Metric	10-Year Event	25-Year Event	100-Year Event
Area 18 peak flow, Q, existing (cfs)	4.10	5.16	6.89
Area 18 peak flow, Q, with paving (cfs)	5.58	7.02	9.36
Change in peak flow in Area 18 (cfs)	1.48	1.86	2.48
Sum of peak flow from all MLGS areas, with paving* (cfs)	70.34	88.61	118.18
Increase in peak flow* (%)	2.1%	2.1%	2.1%

* Represents a worst-case scenario

Table 4. Change in Runoff Volume to the Bioretention Basin

Metric	10-Year Event	25-Year Event	100-Year Event
Area 18 runoff volume, existing (ft^3)	5,657	7,126	9,502
Area 18 runoff volume, with paving (ft^3)	7,694	9,691	12,922
Change in volume in Area 18 (ft^3)	2,037	2,565	3,421
Storage capacity in the bioretention facility (ft^3)	59,830	59,830	59,830
Runoff volume from all MLGS areas, existing (ft^3) (and % storage capacity of the bioretention facility)	36,787 (61%)	46,335 (77%)	61,798 (103%)
Runoff volume from all MLGS areas, with paving (ft^3) (and % storage capacity of the bioretention facility)	38,824 (65%)	48,900 (82%)	65,219 (109%)

Figure 1. NRG Marsh Landing Asphalt Area

References

GenOn Marsh Landing, LLC, 2013. Marsh Landing Generating Station Stormwater Control Plan. Revision 5. Contra Costa County, California.

APPENDIX B

LIST OF PROPERTY OWNERS

051 031 015
PACIFIC GAS & ELECTRIC CO
PO BOX 770000
SAN FRANCISCO CA 94177-0001

051 031 016
PACIFIC GAS & ELECTRIC CO
5555 FLORIN PERKINS RD
SACRAMENTO, CA 95826

051 031 017
NRG DELTA LLC
804 CARNEGIE CENTER
PRINCETON, NJ 08540

051 031 020
NRG DELTA LLC
804 CARNEGIE CENTER
PRINCETON, NJ 08540

051 031 021
NRG DELTA LLC
804 CARNEGIE CENTER
PRINCETON, NJ 08540

051 031 005
FORESTAR (USA) REAL ESTATE CO
Bee Cave Rd, BLDG 2-500
AUSTIN TX 78746-5833