Responses to the December 19, 2008 Issues Resolution Workshop

Application for Certification (08-AFC-6) for WILLOW PASS GENERATING STATION Pittsburg, California

February 2009

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URS

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LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

CCWD	Contra Costa Water District
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CEC	California Energy Commission
DDSD	Delta Diablo Sanitation District
DTSC	Department of Toxic Substances Control
DWST	demineralized water storage tank
EDI	electrodeionization
HCP/NCCP	Habitat Conservation Plan and Natural Community Conservation Plan
HDPE	high-density polyethylene
HHRA	Human Health Risk Assessment
MGAL	million gallons
mg/L	milligrams per liter
NWST	nitrified water storage tank
PG&E	Pacific Gas and Electric Company
PPP	Pittsburg Power Plant
RO	reverse osmosis
ROPWST	reverse osmosis permeate water storage tank
SAA	Streambed Alteration Agreement
TDS	total dissolved solids
VCP	Voluntary Cleanup Program
WPGS	Willow Pass Generating Station
WWST	wastewater storage tank

BIOLOGICAL RESOURCES

Technical Area: Biological Resources
Author: Laurel Cordonnier

WORKSHOP QUESTION

1. Regarding previous Data Request 1, the response had noted that Mirant Willow Pass was working with Delta Diablo Sanitation District (DDSD) to evaluate the feasibility of installing the water supply and wastewater discharge pipelines under Arcy Lane rather than the adjacent Kirker Creek in order to avoid direct impacts to the creek. Please confirm the location of the water supply and discharge pipelines at the intersection of Arcy Lane and Pittsburg-Antioch Highway.

RESPONSE

After review of detailed drawings provided by DDSD of existing utilities at the intersection of Arcy Lane and Pittsburg-Antioch Highway, and communication with the California Department of Public Health (CDPH), Mirant Willow Pass has verified that the new 10-inch recycled water supply line and new 10-inch wastewater discharge lines proposed for the Willow Pass Generating Station (WPGS) project can be installed within Arcy Lane rather than the adjacent creek (previously referred to as Creek Crossing 3).

Since the new pipelines can be installed within the roadway, a Section 404 permit and Section 401 Certification are not required for the project. Furthermore, a Streambed Alteration Agreement is not required for this intersection, although it is still required for three crossings along the offsite pipeline alignment corridor (see response to Workshop Question 3 below). More details are provided below regarding the specific spatial and design requirements for placing the new pipelines in the road.

There is currently a 10-foot space between an existing 48-inch sewer line and a 12-inch potable water pipeline under the west portion of Arcy Lane at the intersection of Pittsburg Antioch Highway. As CDPH regulations require a minimum distance of 10 feet between potable water pipelines and wastewater pipelines, Mirant Willow Pass will need to obtain a variance from CDPH to allow the installation of the WPGS wastewater discharge pipeline under the road. Mirant Willow Pass has established through communication with CDPH (Swing, 2009) that it is likely that a variance would be granted, provided the WPGS wastewater pipeline is constructed using fused high-density polyethylene (HDPE) pipe at a depth below the existing potable water line, and as far from the potable water line as possible. Therefore, since the top of the existing 12-inch potable water line is at an approximate depth of 5 feet below ground surface (bgs), the top of the new 10-inch wastewater line would need to be at least 6 feet bgs. In order to maximize the distance between the WPGS wastewater pipeline and the existing potable water pipeline, the new wastewater pipeline would be installed as close to the location of the existing sewer line as possible. The CDPH variance process is expected to take approximately 3 to 4 months.

CDPH regulations also require a minimum distance of 4 feet between potable water pipelines and recycled water lines. There is currently adequate room within this 10-foot space under the road to install the new WPGS recycled water supply line at least 4 feet from the existing potable water line, and therefore a variance would not be required for the new recycled water supply line.

The new water pipelines will be installed in a trench within the existing road right-of-way using standard pipeline installation techniques and in accordance with the manufacturer's requirements for the installation of fused HDPE piping. Topsoil will be removed and stored prior to excavation of the pipeline trench. Any portion of existing roads or pavement that must be removed in the trenching process will be disposed of offsite in an appropriate disposal area or recycled, if feasible. Spoils from trenching will be stored on pre-disturbed areas. The pipe sections will be joined by fusion welding and laid in the trench on a sand base. To the extent possible, excavation spoils will be used for backfill. Where trenching spoils are not suitable, imported backfill will be used. Once backfilled, the surface will be repaved where applicable.

Reference

Swing, Eric, 2009. California Department of Public Health, Personal communication with Ben Wright of CH2MHill, January 28, 2009.

2. Regarding previous responses to Data Requests 1 and 5, please minimize the pipeline installation methods that will be used at each of the drainage channel and creek crossings.

RESPONSE

The previous response to Data Request 1, submitted to the California Energy Commission (CEC) as part of the *Response to CEC Data Requests (#1-48)*, includes a summary of pipeline installation methods that could potentially be used at each of the drainage and creek crossings (see Table 1-1). This table has been revised below to identify the most likely installation methods that would be used at each of the crossings; the number of options for each crossing has been narrowed down per the CEC's request. This revised table also reflects the open cut pipeline installation method at Creek Crossing 3, as discussed in response to Workshop Question 1 above.

Since the groundwater level is not currently known in the area of the Drainage Channel Crossing 2 and Railroad Crossing 1 (both of which are within the railroad switchyard), two options are listed for the railroad switchyard crossing: microtunneling and auger boring. If the groundwater table is high, then microtunneling, which uses a pressure balance against the groundwater, would likely be the required tunneling method. If the groundwater level is low, then auger boring may be acceptable.

Please note that the term "jack and bore" has previously been used to describe various crossing tunneling methods. "Jack and bore" is typically used as a general term to describe several different tunneling methods. The recommended crossing methods listed in Revised Table 1-1 have been clarified to use terms for the listed tunneling methods that are more specific than "jack and bore."

With respect to the listed methods, and in response to previous Data Request 6, which requested additional information on procedures to be implemented in the event of a frac-out, it should be noted that frac-out is only a potential issue with microtunneling, which uses a pressurized slurry during its procedure. The other methods listed in Data Response Revised Table 1-1 below do not use this approach, and therefore, do not pose a risk of frac-out.

Revised Table 1-1
Offsite Pipeline Crossings[1]

Crossing Type	Location	Figure[2]	Most Likely Installation Method	Potential Biological Permits/Approvals
Drainage Channel Crossing 1	Immediately south of the Pittsburg Power Plant site	1-1	• Open cut trench	N/A
Drainage Channel Crossing 2	Railroad switchyard	1-2	• Auger boring[3] • Microtunneling[4]	Streambed Alteration Agreement
Creek Crossing 1	Kirker Creek west of Loveridge Road	1-4	• Pipe ramming[5]	Streambed Alteration Agreement
Creek Crossing 2	Unnamed tributary of Kirker Creek	1-5	• Pipe ramming	Streambed Alteration Agreement
Creek Crossing 3	Pittsburg-Antioch Highway/Arcy Lane	1-6	• Open cut trench	N/A
Railroad Crossing 1	Railroad switchyard	1-2	• Auger boring • Microtunneling	N/A
Railroad Crossing 2	West of Kirker Creek	1-3	• Pipe ramming	N/A
Railroad Crossing 3	West of Railroad Avenue Overpass	1-4	• Pipe ramming	N/A

[1] The launching and receiving pit locations remain as presented in Figures 1-1 through 1-6 in the *Responses to CEC Data Requests (#1-48).*

[2] Figures previously provided in *Responses to CEC Data Request (#1-48)*.

[3] Auger Boring: The auger boring method utilizes an auger boring machine to bore a hole under the crossing and removes spoils via auger flights and jacks to advance a casing pipe behind the boring machine. Vertical pits are excavated to reach the appropriate boring location. Auger boring operations require an auger boring drive and thrust unit located within the pit along with a guide rail casing support system. Soils from the auguring operation are transported back to the jacking shaft and removed using a crane and skips. As the excavation progresses, the casing is jacked into place to prevent collapse of the surrounding ground. Sections of pipe to be installed will be stockpiled around the shaft for future use. If conditions require lubrication, a bentonite pumping plant would be located at the ground surface with injection hoses installed to ports on the casing to reduce jacking friction. An excavator will be used to excavate the shafts, a pile driver will be used to drive sheet piles and dump trucks will be used to remove spoils. No slurry is used with this method, and therefore, there is no risk of frac-out. A fusion bonding machine will be used for fusing the HDPE carrier pipe joints together.

[4] Microtunnelling: This method comprises a trenchless construction method that uses a remote controlled microtunneling boring machine (MTBM), usually located on the surface. The system simultaneously installs pipe as spoils are excavated and removed. Continuous pressure is provided to the face of the excavation to balance ground water and earth pressures. Microtunneling uses a series of gauges, television cameras, and a laser targeting system. The microtunneling system uses a surface slurry plant, a slurry separation plant, a control container, and a lubrication injection and pumping plant. These will all be located away from the drainage channel. An excavator will be used to excavate the shafts, a pile driver will be used to drive sheet piles, and dump trucks will be used to remove spoils. A fusion bonding machine will be used for fusing the HDPE carrier pipe joints together.

[5] Pipe Ramming: This method comprises excavation of vertical shafts to the appropriate depth and then "ramming" pipes horizontally. The method uses a system of installing a crossing by driving an open-ended casing using a percussive hammer from a shaft that only displaces a soil volume equivalent to the wall thickness of the casing. Soil would remain in the casing until the crossing has been completed and then would be removed by water, augering, jet-cutting or compressed air. This method does not use hydraulic drilling muds such as those used in some other underground pipe installation methods. An excavator will be used to excavate the shafts, a pile driver will be used to drive sheet piles, and dump trucks will be used to remove spoils. A fusion bonding machine will be used for fusing the HDPE carrier pipe joints together.

3. Regarding the previous response to Data Request 3, since the response verifies that the project will require Streambed Alteration Agreements, please confirm when these were or will be filed. Provide any input from the California Department of Fish and Game regarding potential mitigation measures that may be required.

RESPONSE

In the previous response to Data Request 1, the applicant provided a summary of agency communication. At the time of submittal, the applicant had requested confirmation from the California Department of Fish and Game (CDFG) that a Streambed Alteration Notification (SAN) would be required for the project, and had not yet received a response to that request. Mirant Willow Pass has since received a written and a verbal response to this request. Details of these communications are provided in Appendix A.

CDFG confirmed that separate SANs would be required for each relevant crossing. Therefore, the applicant has prepared SANs for Drainage Crossing 2, as well as Creek Crossings 1 and 2. No SAN is required for Drainage Channel 1 because the pipelines will cross this channel at a location where it is confined within a culvert, underneath a roadway. No SAN is required for Creek Crossing 3, since the pipelines will be installed within the roadway (see response to Workshop Question 1 above). The SANs are included as Appendix B; these have been submitted to CDFG concurrent with the submittal of these responses.

While CDFG has not provided specific input regarding mitigation measures that may be required as part of the project's SANs, during conversations with CDFG (Appendix A) it was understood that measures could be identified in order to avoid or minimize impacts to sensitive species and habitats, prevent sedimentation or other water quality impacts, and avoid frac-out (should microtunneling be used). The following measures are typical of the type of actions that could be implemented to avoid impacts on biological resources. These measures are described in more detail in the SANs provided in Appendix B.

- Avoid sensitive habitats and species during construction by developing construction exclusion zones and silt fencing in sensitive areas.
- Provide worker environmental awareness training for all construction personnel.
- Avoid wetland/stream impacts by maintaining appropriate distances between water bodies and construction areas and installing sediment and erosion controls during construction.
- Maintain secondary containment and emergency spill response materials to prevent soil and water contamination.
- Restore vegetation and topography of disturbed areas following construction.
- Cap open pipes overnight and inspect trenches for wildlife before backfilling.
- Employ appropriate pipeline installation techniques (as described in response to Workshop Question 2 above) to prevent disturbance to stream channels, streambeds, and banks.
- Employ appropriate species-specific measures to avoid impacts to special-status species, including conducting surveys of construction areas prior to construction, training construction personnel on species identification and protection measures and employing a qualified biologist on site to monitor construction activities.

4. Please discuss the East Contra Costa County Natural Community Conservation Plan, given that the project site and portions of the offsite linear fall within the City of Pittsburg.

RESPONSE

The *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan* dated October 2006 (the HCP/NCCP) and the *Natural Community Conservation Plan Permit (2835-2007-001-03) for the East Contra Costa County Natural Community Conservation Plan* dated August 2007 (Natural Community Conservation Plan Permit, 2007) were both reviewed to respond to this workshop question.

After reviewing these documents, it was concluded that the HCP/NCCP would not apply to the WPGS project, based on the following:

1. As stated in Section 1.2.4, Chapter 1, page 17, of the HCP/NCCP, "The primary goal of this Plan is to obtain authorization for take of covered species under ESA [Endangered Species Act] and NCCPA [National Community Conservation Planning Act] for the reasonable expansion of urban development in the cities of Clayton, Pittsburg, Brentwood, and Oakley and specific areas of Contra Costa County in accordance with approved land use plans." The Permit (2835 2007 001 03) states, "The HCP/NCCP provides a coordinated process for permitting and mitigating the take of Covered Species…" (NCCP Permit 2007, p. 5). "Take" under the HCP/NCCP is defined through the Endangered Species Act, Section 3 (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) and the California Fish and Game Code, Section 86 (i.e., hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill).

   The construction and operation of the WPGS is not expected to result in the take of any species covered under this HCP/NCCP. Construction of the WPGS units would occur within the existing Pittsburg Power Plant (PPP) site, and would affect only limited areas of habitat of low ecological value. No covered species are expected to occur within the PPP. Construction of the offsite water supply and discharge pipelines would also occur within areas of developed or disturbed land or areas containing low-value disturbed habitats. There is some potential for covered species to occur within the vicinity of the water pipeline alignment; however, with the implementation of appropriate avoidance and minimization measures (as described in the AFC and also discussed previously in the response to Workshop Question 3 above), no take is anticipated. Informal consultation will be initiated with the U.S. Fish and Wildlife Service (USFWS), and will serve to verify this determination. Therefore, this permit and its requirements are not applicable.

2. The City of Pittsburg's Implementation Ordinance for the HCP/NCCP was also considered (see Chapter 15.108 in East Contra Costa County Habitat Conservancy, 2009). The document was prepared to establish the procedures for implementing the plan within the City of Pittsburg. Under the Applicability Section of the Ordinance, 15.108.030, it states that the ordinance would not apply to "Any development project that will permanently disturb less than one acre…" Permanent disturbance is defined in Chapter 9.3.1 of the HCP/NCCP as "all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically

altered or directly affected in any way but is isolated from natural areas by the covered activity."

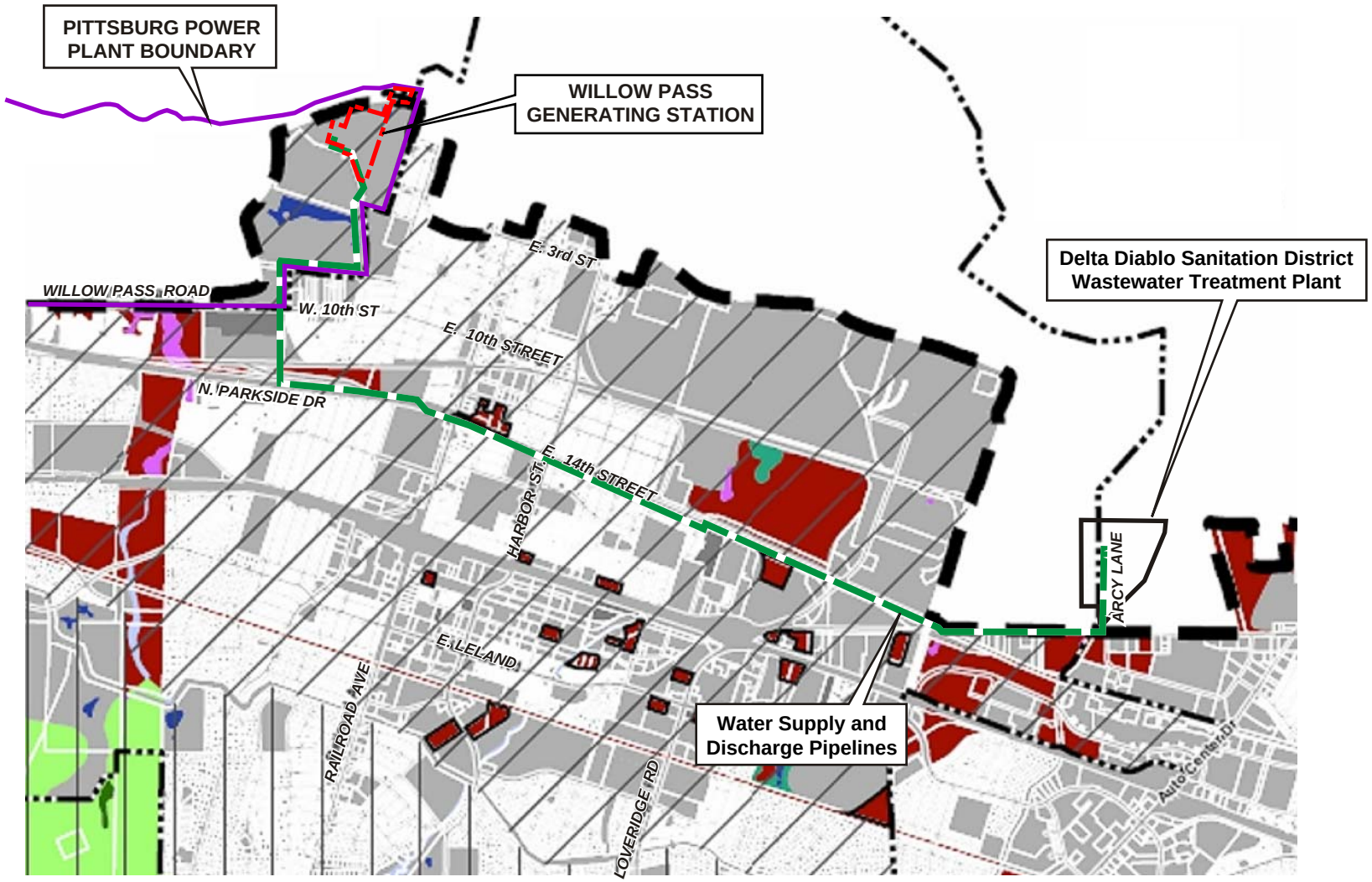
Under this definition of permanent disturbance, the WPGS will not result in any permanent impacts. The construction of the WPGS units will occur within existing developed areas that do not provide habitat of any substantial ecological value, and will not result in any habitat fragmentation. The impacts associated with the offsite water supply and discharge pipelines would be temporary in nature, as existing habitat conditions would be expected to reestablish within one growing season.

3. The Pittsburg Ordinance also states exemption for "Any development project that the City Planner determines is contained entirely within an area mapped as urban, turf, landfill and/or aqueduct land cover types in the HCP/NCCP, as generally depicted on Exhibit A…"

   As defined in the Development Fee Zone Map of the Pittsburg Ordinance (attached as Figure 4-1), the WPGS and the offsite water supply and discharge pipelines will be constructed primarily within urban, developed areas. The one exception is the proposed offsite water pipelines alignment within the railroad switchyard, which is defined under the ordinance as ruderal habitat. Most impacts to this area will be avoided through the use of microtunneling; remaining impacts will be temporary in nature.

Reference

East Contra Costa County Habitat Conservancy, 2009. Documents webpage. URL:http:// www.co.contra-costa.ca.us/depart/cd/water/HCP/documents.html. Accessed February 2009.



LEGEND

Land Cover Type

- alkali wetland
- aquatic/slough channel
- future urban
- ruderal
- wetland/seasonal wetland
- urban, turf, landfill or aqueduct

Fee Zone

- Zone I
- Zone II

N

0 2000 4000

CITY OF PITTSBURG'S IMPLEMENTATION ORDINANCE FOR THE HCP/NCCP: DEVELOPMENT FEE ZONE MAP

Willow Pass Generating Station
Mirant Willow Pass, LLC
Pittsburg, California

February 2009
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FIGURE 4-1

1/30/09 vsa ..T:\Mirant Pittsburg-Willow Pass\Graphics\DR-Workshop Response\Fig 4-1_develop fee zone_site.ai

5. Although not a question in the workshop, Applicant hereby submits results of the botanical survey completed for the eastern portion of the Pittsburg Power Plant site and along the offsite linear pipeline alignment. As indicated in the AFC, page 7.2-2, this survey was undertaken in order to identify locations of any special-status plant species.

RESPONSE

A botanical survey of the eastern portion of the PPP site and water pipelines alignment is provided in Appendix C. This survey did not identify any rare, threatened, or endangered plants within the construction area of either the WPGS or the water supply and discharge pipelines. Therefore, it is not considered likely that any rare, threatened, or endangered plants would be impacted by the project.

SOIL AND WATER RESOURCES

Technical Area: Soil and Water Resources
Author: Richard Latteri

WORKSHOP QUESTION

6. Regarding the previous response to Data Request 27, please provide additional information on the reliability of the recycled water supply from Delta Diablo Sanitation District (DDSD), and provide details of a potential backup water supply, such as storage on site or an alternate water source, that would be used to ensure plant operation in the event of disruption to the DDSD supply.

RESPONSE

Mirant Willow Pass agrees with CEC staff that water supply reliability is an important area of analysis related to the reliability of the proposed facility. The applicant will continue its analysis and evaluation to ensure that the proposed facility meets or exceeds necessary reliability criteria.

Additional information on the reliability of the proposed water supply system is provided below.

Reliability of Recycled Water Supply

DDSD's recycled water facility began operation in 2001 for the purpose of serving two Calpine power generating plants (Los Medanos Energy Center and Delta Energy Center). The recycled water facility, as well as the wastewater treatment plant, are operated and maintained by DDSD's trained operators and maintenance staff. Although the Calpine projects have contracts with the Contra Costa Water District (CCWD) for the use of Contra Costa Canal water as a backup water supply, there has never been a need for these facilities to use backup water.

Reliability of Conveyance Pipeline

The proposed water supply pipelines will be approximately 5 miles in length, of which approximately 1 mile will be within the PPP site and approximately 4 miles will be within existing roads and railroad rights-of-way. The makeup water pipeline is expected to be 10-inch-diameter HDPE pipe. The pipe will be installed in a trench using standard pipeline installation techniques in accordance with applicable standards and specifications.

HDPE pipe is durable, lightweight, flexible, and is commonly used for the transmission of water and other fluids. It is highly resistant to corrosion, abrasion, and chemicals. With proper installation, HDPE piping systems provide long service life and leak-free joints. Flows from the DDSD's recycled water facility and inflows to the nitrified water storage tank at the WPGS would be continuously monitored, such that any significant change in flows that might indicate a leak would be quickly identified. Typically, emergency repairs that would be needed could be completed quickly upon detection of a leak.

Treated Water Storage Tanks

The WPGS will have the following storage tanks:

- 1.6 million gallons (MGAL) nitrified water storage tank (NWST)
- 0.9 MGAL reverse-osmosis permeate water storage tank (ROPWST)

- 0.8 MGAL demineralized water storage tank (DWST)
- 0.6 MGAL wastewater storage tank (WWST)

Table 6-1 summarizes tank sizing for various operating scenarios assuming that the makeup water supply from DDSD is interrupted and there is no inflow to the plant. Due to the high level of reliability of the DDSD's facilities, it is considered highly unlikely that the makeup water supply would be interrupted for any extended period.

During periods of peak demand for electricity, the WPGS would most likely operate for up to 18 hours each day. Evaporative cooling would be on for the entire 18 hours; however, power augmentation would generally only be on for approximately 12 hours to coincide with the peak demand hours during the day. As shown on Table 6-1, during those periods, the onsite water storage system would provide sufficient storage for the WPGS to operate for more than 4 consecutive days, if the makeup water supply from DDSD were to be interrupted.

Even if the WPGS was required to operate at full load for 24 hours (with both evaporative cooling and power augmentation on for the entire 24 hours), the plant would still be able to operate under these conditions for approximately 2 days, even with no flow from DDSD.

This demonstrates that the onsite water storage system provides sufficient capacity to ensure the reliability of the WPGS, such that an additional backup water supply is not considered necessary.

Reliability of Advanced Treatment Process

Onsite Nitrification: Nitrification is the biological process of converting ammonia to nitrate in an attached growth bioreactor. The DDSD recycled water is extremely high in ammonia, which, if not removed, would, in the long run, be detrimental to the power plant. Ammonia in the water is a nutrient for *nitrosomonous* bacteria, which metabolize the ammonia into nitric acid. The proposed project includes a nitrification bioreactor to eliminate the ammonia that is in the recycled water supplied by DDSD and therefore improve reliability of the WPGS.

Bioreactors themselves come in a variety of inherently reliable configurations, such as Biological Aerated Filters (or equivalent). The bioreactor will be designed for a minimum of 50 percent redundancy on all critical equipment. However, in the unlikely event that the entire nitrification facility was not available, the power plant could continue to operate on un-nitrified recycled water (bypassing the nitrification facilities) using increased chlorination and other techniques to minimize damage to the plant until the nitrification facilities were brought back on-line.

Onsite RO/EDI: Reverse osmosis (RO) and electrodeionization (EDI) are mature technologies that have been used at power plants for at least 20 years. These membrane technologies have displaced ion-exchange in popularity over the years because they are inherently reliable and easy to operate and maintain as long as the feedwater to the membranes meets RO feedwater quality limits. As a precaution to avoid fouled membranes, a backwashable pre-filter will be used to ensure that RO feedwater quality limits are met. The membrane systems will also include standard clean-in-place systems for preventive maintenance.

All critical membrane systems (e.g., the pre-RO filtration) will be designed with sufficient redundancy to ensure that the plant can continue to operate at full load even if a critical component were to fail.

Table 6-1
Willow Pass Generating Station[1,2]
Tank Sizing and Backup Water Supply Scenarios (Continued)

Assume No inflow from DDSD	Power Augmentation On and Evaporative Cooling On			Power Augmentation On and Evaporative Cooling Off			Power Augmentation Off and Evaporative Cooling On		Power Augmentation Off and Evaporative Cooling Off	
Hours of Plant Operation	24	18	12	24	18	12	24	18	24	18
Power Augmentation On/Off	On	On	On	On	On	On	Off	Off	Off	Off
Hours of Power Augmentation On	24	18	12	24	18	12	0	0	0	0
Evaporative Cooling On/Off	On	On	On	Off	Off	Off	On	On	Off	Off
Hours of Evaporative Cooling On	24	18	18	0	0	0	24	18	0	0
Maximum Power Output (94° F) – MW	533	533	533	496	496	496	490	490	457	457
Number of days plant can operate[3] (Synchronized Tank Draw-Down)	2.0	2.3	4.3	2.7	3.5	11	4.5	6	>27	>27
Additional Storage to run 2 days (total) – % each supply tank[4]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Additional Storage to run 3 days (total) – % each supply tank[4]	50%	30%	NA	10%	NA	NA	NA	NA	NA	NA

Notes:

1 WPGS consists of two FP10s
2 WPGS water storage tanks include:
  1.6 MGAL nitrified water storage tank (NWST)
  0.9 MGAL reverse-osmosis permeate storage tank (ROPST)
  0.9 MGAL demineralized water storage tank (DWST)
  0.6 MGAL waste water storage tank (WWST)
3 Analysis based on synchronized tank draw-down of all water storage tanks. It is assumed that the tanks are 80 percent full when DDSD supply is interrupted at the start of the simulation.
4 Relative to tank capacities stated in Note 2.

Legend

DDSD – Delta Diablo Sanitation District
MGAL = million gallons
MW = megawatts
NA = not applicable; indicates plant can operate for more than 2 or 3 days and additional storage (or backup water supply) not needed

Backup Water Supply

As discussed above, the onsite water storage system provides sufficient backup water supply for the proposed project and there is no absolute need for an additional source of backup water supply. However, in response to the CEC's request to consider alternative water supplies, other options for backup water supply were evaluated, but deemed unnecessary (and in some cases infeasible), including:

- Water from the City of Pittsburg
- Water from the Contra Costa Canal
- Groundwater
- Water from Suisun Bay

The City of Pittsburg will provide potable water to the WPGS for the plant's washrooms, safety eyewash stations, and other potable water uses. The potable water supply pipeline will connect to the existing PPP water supply pipeline. This water could also be used as a backup water supply for the plant's makeup water. Because the onsite storage tanks provide sufficient storage in the event of a water supply interruption, this additional supply is not considered necessary.

Another option would be to use raw surface water from the Contra Costa Canal. CCWD charges a backup water supply connection fee as compensation for reserving capacity in its system so that water can be served when needed. Both the Delta Energy Center and Los Medanos Energy Center have backup water supply agreements with CCWD; however, since operation at these plants began in 2001, there has never been a need for these facilities to use the backup water supply from the Contra Costa Canal. The connection closest to the WPGS is an existing lateral located on the PPP property that runs north-south between the row of tanks and the access road. A new pipeline would need to be constructed between the lateral and the new nitrified water storage tank at the WPGS site. This pipeline would be approximately 1,200 feet long and would be installed within the access roads. Because the onsite storage tanks provide sufficient storage in the event of a water supply interruption, this additional supply is not considered necessary.

If this onsite connection could not be used, the proposed project could connect directly to the Contra Costa Canal via a new pipeline. Connection to the canal would require the construction of an approximately 9,500-foot-long pipeline that would cross roads, rail lines, and creeks. This connection would still require construction of a wastewater discharge pipeline to DDSD. Costs and potential increased environmental impacts associated with construction of this pipeline make this option impracticable, considering that this backup water supply is not considered necessary.

Groundwater could provide another potential backup water supply. Currently the PPP does not have any groundwater supply wells, although a new well could be installed to supply the WPGS. The City of Pittsburg has several municipal wells approximately 1.5 miles south of the PPP site. These wells are screened between 100 and 200 feet below ground surface. The groundwater in the area has elevated levels of total dissolved solids (TDS), and as such, the City of Pittsburg blends the groundwater with water from the Contra Costa Canal. TDS in groundwater near the PPP site is generally between 500 and 1,500 milligrams per liter (mg/L) (Planert and Williams, 1995), while TDS levels at two of the City's wells range from approximately 450 to 750 mg/L (City of Pittsburg, 2006). Because the onsite storage tanks provide sufficient storage in the event of a water supply interruption, this additional supply is not considered necessary and has, therefore, not been fully analyzed.

The existing PPP uses Suisun Bay as its cooling water supply. Another option would be for the proposed project to connect to the PPP's water supply for emergency backup purposes. In light of current regulatory policies, this likely is not an optimal solution. Because the onsite storage tanks provide sufficient supply in the event of a water supply interruption, this additional supply is not needed and has not been fully analyzed.

References

City of Pittsburg, 2006. Summary of Water Quality Data, Bodega Municipal Well, February 17.

Planert, M. and J.S. Williams, 1995. *Groundwater Atlas of the United States – Segment 1 California and Nevada:* U.S. Geological Survey Hydrologic Investigations Atlas 730-B, 28 pp.

WORKSHOP QUESTION

7. Regarding previous Data Request 29, please verify whether construction water use estimates include soil compaction. If they do not, provide the total quantity of water in acre-feet that would be used for compaction and detail during which months this water would be used. Confirm what the source of this water would be.

RESPONSE

Construction water use requirements presented in AFC Table 2.7-4 include water use for soil compaction. Soil compaction requirements are also included in Table 29-1 of the *Responses to CEC Data Requests (#1 – 48),* which presents average daily water use for the WPGS. Soil compaction water use was originally included within the approximate quantities for dust control in Table 29-1.

A revised version of Data Response Table 29-1 is provided below showing water used specifically for soil compaction. Average daily water used for soil compaction is approximately 250 gallons. The total annual water use for soil compaction is approximately 0.2 acre-foot. It is anticipated that soil compaction would occur between October 2009 and April 2011. Construction water, including water used for soil compaction, would be supplied by the City of Pittsburg potable water.

Revised Table 29-1
Estimated Construction Water Uses

Construction Water Use	Average Daily Water Usage (gallons per day)*	Total Annual Water Usage (acre-feet)*
Consumption[1]	3,300	3
Dust Control[2]	4,150	3
Concrete Washout[3]	250	0.2
Soil Compaction[4]	250	0.2
Hydrostatic Testing[5]	4,500	2
Steam Blow[6]	50,000	6

Notes:
* Quantities are rounded up to next whole number/decimal point.
[1] Use would occur over a 34-month period. Total annual amount reflects maximum 12-month usage.
[2] Use would occur over a 31-month period. Total annual amount reflects maximum 12-month usage.
[3] Use would occur over a 10-month period. Total annual amount assumes that all usage would occur in same year.
[4] Use would occur over a 19-month period. Total annual amount reflects maximum 12-month usage.
[5] Use would occur over 5 months. Total annual amount assumes that all usage would occur in same year.
[6] Use would occur over two 1-month periods. Total annual amount assumes that all usage would occur in same year.

WASTE MANAGEMENT

Technical Area: Waste Management
Author: Alvin Greenberg

WORKSHOP QUESTION

8. Please provide contact details for the Security Manager at the project site.

RESPONSE

Mirant provided these contact details to Dr. Alvin Greenberg after the workshop.

WORKSHOP QUESTION

9. Please identify the oversight agency that will oversee additional site investigation and required remediation activities.

Mirant Delta, LLC (Mirant Delta) currently owns the project site and is a party to contractual arrangements in which the previous owner of the project site retained responsibility for certain remediation activities at the project site. Mirant Delta and Mirant Willow Pass, LLC (collectively, "Mirant") are working with the previous owner to develop a plan for addressing any site investigation and remediation activities that may be necessary for the project site due to construction of the Willow Pass Generating Station (WPGS).

Based on preliminary discussions, the previous owner has confirmed that the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) will be the likely oversight agency for investigations and remediation activities at the project site.

Mirant expects to work with the previous owner of the project site to initiate the Voluntary Cleanup Program (VCP) process with DTSC, and to prepare and submit a workplan to conduct additional site assessment activities prior to the commencement of the WPGS project. The VCP process will be initiated when the start date for construction is finalized, which is dependent on the timing of the CEC certification process and potentially other factors associated with commercial arrangements and project economics. The workplan would be developed with input from the previous owner of the project site, but Mirant expects the workplan to generally include:

Existing Data Review

- A description of the existing data from previous Phase I and Phase II Environmental Site Assessments for the WPGS site.
- An assessment of the Human Health Risk Assessment (HHRA) methodology used in the 1998 Phase II Environmental Site Assessment and recommendations for updating the HHRA based on current risk assessment practices as well as assessing the need for an Ecological Risk Assessment.
- A data gap and verification analysis to assess additional sampling requirements in (1) areas not previously investigated due to restricted access during the previous Phase II Environmental Site Assessment, such as the sumps located in the basements of Units 1 through 4, and beneath the existing aboveground storage tank (Tank 7), and (2) areas where previous investigation results may need to be verified.

Scope of Work and Timeline

- Preparation of a detailed scope of work to collect additional data to update the HHRA and prepare an Ecological Risk Assessment (if necessary).
- A phased schedule for executing the proposed scope of work, including work that can be done prior to demolition (i.e., site investigation activities outside Units 1 through 4 and Tank 7) and work to be conducted after/during demolition of Units 1 through 4 and Tank 7.

After the additional site investigation activities have been completed, the HHRA would be updated and used for the development of site-specific cleanup goals. Based on the results of the risk assessment(s), if required, a Remedial Action Work Plan would also be developed to address the presence of soil and/or groundwater contamination requiring remediation that would be submitted to DTSC for review and approval.

The work described above (i.e., initiation of the VCP process, additional DTSC coordination, workplan development, site investigation activities, and remedial actions) would be conducted prior to any soil disturbance at the project site, and prior to the initiation of construction and performed in accordance with DTSC oversight and a DTSC-approved workplan. Mirant Willow Pass is prepared to comply with conditions of certification that reflect the foregoing requirements.

WORKSHOP QUESTION

10. Please identify the minimum percentage of total demolition waste that will be recycled.

Response

During project demolition, at least 50 percent (by weight) of the demolition waste will be recycled. This percentage is consistent with the City of Pittsburg's proposed regulation stating that "50 percent of all debris generated by the project shall be diverted." This regulation is expected to be approved by the city in March 2009 (Right, 2008).

References

Right, Laura, City of Pittsburg, 2008. Personal communication with Kathy Rushmore of URS Corporation. December 30, 2008.

WORKSHOP QUESTION

11. Regarding Data Request 41, please submit an additional copy of the 1998 Fluor Daniel Phase II ESA.

RESPONSE

An additional copy of the 1998 Fluor Daniel Phase II Environmental Site Assessment was provided to Dr. Alvin Greenberg on December 23, 2008.

WORKSHOP QUESTION

12. Regarding Data Request 42, please further investigate whether the Phase II was submitted to any regulatory agencies and whether any comments were received.

RESPONSE

The Phase II Environmental Site Assessment report was commissioned by a former owner of the Pittsburg Power Plant site. Mirant met with the previous owner of the project site on January 14, 2009. During the meeting, Mirant was able to confirm that the 1998 Phase II Environmental Site Assessment was previously submitted by the former owner of the site to the DTSC, the Regional Water Quality Control Board, and the California Public Utilities Commission. The previous owner was not able to recall ever receiving comments on the Phase II from any of these agencies.

WORKSHOP QUESTION

13. Regarding Data Request 44, please conduct and provide a modified Phase I Environmental Site Assessment for the offsite linear pipelines.

RESPONSE

A Phase I Environmental Site Assessment for the water and wastewater discharge pipelines alignment was prepared by URS and is provided in Appendix D.