

PMSTPCOL PEmails

From: Nash, Harriet
Sent: Wednesday, February 17, 2010 11:24 AM
To: Muir, Jessie
Cc: STPCOL
Subject: FW: STP EFH assessment

From: Bunn, Amoret L [mailto:Amoret.Bunn@pnl.gov]
Sent: Friday, February 12, 2010 5:12 PM
To: Masnik, Michael
Cc: Nash, Harriet
Subject: RE: STP EFH assessment

[Not sure why this file was returned to me. I have added the description of the RMPF and discharge structure in the EFH assessment to the file below. The fish bypass system is described in my original message below.](#)

[Pages 12-13, EFH Assessment:](#)

Reservoir Makeup Pumping Facility. The RMPF is located along the west bank of the Colorado River and is an existing facility that would be modified solely within its existing footprint to supply water to the MCR for operating all four nuclear units. The facility is located near navigable mile marker (NMM) 8 on the Colorado River upstream from the confluence with the GIWW, and the structure is “flush” to the river bank with no projecting structures into the river. The RMPF withdraws water through a 406-ft-long intake along the shoreline. The traveling screens have a 3/8-in. mesh, and operate intermittently to coincide with the intermittent withdrawal of river water. There are 18 travelling screens, each of 13.5 ft width, with the bottom of the screens situated at 10 ft below mean sea level (MSL) in the Colorado River (water surface elevation in the Colorado River at 0 ft MSL). The area of the 18 screens would be 2430 ft². Water from the river flows through trash racks, then through traveling screens, and then over a weir into an embayment before entering the pumps, and being released through pipelines into the MCR.

STPNOC has stated that periodic dredging in the future would be conducted in front of the RMPF (STPNOC 2009a). These activities are currently covered by existing permits with the Corps for the operation of Units 1 and 2. In addition, the Corps would be conducting maintenance dredging of the navigation channel in the river in the vicinity of the discharge structure and RMPF (Corps 2009a). Based on past dredging events, the substrate that would be dredged is predominantly silty-clay soils with approximately 6 in. of “detritus and silt soils” on the surface. Dredged material would be placed in the designated onsite location that is currently used for storage of material removed during maintenance activities with the RMPF (STPNOC 2009b). The area to be dredged would be approximately one ac.

Main Cooling Reservoir. The MCR is a 7000-ac engineered impoundment enclosed by an engineered embankment. STPNOC has indicated that, at the maximum normal operating pool of 49 ft MSL, the reservoir contains approximately 202,700 ac-ft of water. The CWIS for Units 3 and 4 would be located within the MCR. This intake system would be a 131-ft by 392-ft concrete structure and would house eight pumps for the two proposed units. The structure would include traveling screens and bar screens. Pipes carrying water from the plant would run to the turbine building. The circulating water discharge structure for Units 3 and 4 would also be located within the MCR. The water return from Units 3 and 4 turbine buildings would enter the MCR through a new discharge structure within the MCR. The simple discharge structure would include a weir and a stilling basin to dissipate the velocity of the returning water before it enters the MCR. Dikes within the MCR increase the travel time that cooling water from the circulating water system would experience. The reject heat from the existing and proposed units would enter the MCR in the form of sensible heat in circulating water in the MCR. As the heated water circulates in the MCR, the heat is gradually dissipated to the environment through evaporation, conduction, and long-wave radiative cooling.

A diverse aquatic community exists in the MCR, but the organisms are not available for harvest. No public access or use of the MCR exists. In addition, the Corps has determined that the MCR is not considered waters of the United States (Corps 2009b), and the Texas Commission on Environmental Quality (TCEQ) has stated that the MCR is not considered waters of the State (TCEQ 2007; STPNOC 2008a).

The aquatic community in the MCR was evaluated in 2007-2008 (ENSR 2008b). A total of 11,605 finfish and invertebrates were collected over the duration of the sampling program for the MCR. The most common fish species collected were with seines, and included threadfin shad (*Dorosoma petenense*, 62 percent), inland silverside (*Menidia beryllina*, 18 percent), rough silverside (*Membras martinica*, 12 percent), and blue catfish (*Ictalurus furcatus*, three percent). The macroinvertebrates were characterized using plankton tows, and a total of 5,362 organisms were collected in the MCR. The most common species (84 percent of all samples) collected were Harris mud crab larvae (*Rhithropanopeus harrisi*), and more than 99 percent of all sampled organisms were crustaceans (ENSR 2008b).

The same study also evaluated the impinged and entrained aquatic resources by the CWIS in the MCR for Units 1 and 2 (ENSR 2008b). Overall, very few fish species were impinged (less than 50 percent) or entrained (less than one percent). A total of 3982 organisms representing 25 fish species, seven invertebrate species, and one reptile were collected during impingement sampling. Impingement rates were highest during the winter and early spring months. The dominant species collected in the impingement samples were threadfin shad (42 percent), Harris mud crab (24 percent), blue crab (*Callinectes sapidus*, 24 percent), Atlantic croaker (*Micropogonias undulates*, five percent), and white shrimp (*Litopenaeus setiferus*, three percent). A total of 207,696 organisms representing nine different fish families and 12 different invertebrate classes were collected during entrainment sampling. Entrainment rates were highest during the spring months. The dominant species collected in the entrainment samples were Harris mud crab (68 percent), unidentified decapods (15 percent), and harpacticoid copepods (six percent). Less than one percent of the total composition of entrained organisms was fish eggs (ichthyoplankton) (ENSR 2008a).

Water quality sampling in the MCR showed that there were seasonal and spatial changes within the reservoir. Water temperature was the highest at the cooling water discharge area and gradually decreased by approximately 10°F as the water traveled through the internal levee system to the CWIS. The temperature through the water column did not vary much: 65.3°F to 96.1°F for surface measurements, and 65.1°F to 95°F for bottom measurements. Through the year, the temperature did vary. Temperature data from trawl samples increased from an average 86.4°F in May to 93.4°F in August and then decreased in October to 76.8°F and then to 70.5°F in February. Salinity remained constant throughout the reservoir and the water column at approximately 1.6 ppt.

Discharge Structure. Discharge from the MCR enters the Colorado River through a series of seven 36-in. pipes directed 45 degrees from the downstream western shore. The discharge structure is located about 2 mi downstream of the RMPF, located at NMM 6 on the Colorado River upstream from the confluence with the GIWW. The pipes entering the river are spaced 250 ft apart. Discharge that is released from the MCR approaches the diffusers through a 78-in.-diameter pipeline. As mentioned above, STPNOC has only released water through the discharge system once during the operation of Units 1 and 2. No change to the existing discharge structure is proposed for the new nuclear units (STPNOC 2009a).

From: Bunn, Amoret L
Sent: Friday, February 12, 2010 2:03 PM
To: 'Masnik, Michael'
Cc: 'Nash, Harriet'
Subject: STP EFH assessment

Mike,

I understand your comments concerning the details in Section 3 about the intake structure, RMPF, at the STP site. I included those details in Section 5.3.2.1. I modified Lance's description from Section 3 with some of the details on the structure for the EFH assessment (see page 12 of the attached file). This file

<< File: South_Texas_EFH_2-11-10.doc >>

I am not sure I did an adequate description of the "fish bypass system" in the EFH assessment. That is discussed in Section 5.3.2.1:

Fish collected on the traveling screens can be returned to the river via the sluice and a fish bypass pipe. The point of return is at the downstream end of the intake structure, approximately 2 ft below normal water elevation (STPNOC 2009a). During high-flow conditions, the accumulation of debris on the traveling screens is too high to open the fish bypass system, and screenwash discharge is directed to the sluice trench catch baskets rather than back to the river. Generally, the fish bypass system is closed when river flows are greater than 4000 cfs, and the system is occasionally closed when flows are greater than 2000 cfs (which has occurred from 2001-2006 only 7 percent of the time) (STPNOC 2009a, 2008b). Impingement mortality can be reduced based on the procedures for operating the RMPF. Operators at the RMPF are required to monitor for increased impingement rates on the

traveling screens, and factors like river flow, salinity, and observations of impingement are used to determine if pumping should continue (STPNOC 2009a, 2008a, b).

References:

South Texas Project Nuclear Operating Company (STPNOC). 2008a. Letter from Scott Head (STPNOC, Manager, Regulatory Affairs, South Texas Project, Units 3 and 4) to U.S. Nuclear Regulatory Commission dated December 18, 2008 in response to NRC letter dated November 18, 2008, "South Texas Project Units 3 and 4, Docket Nos. 52-012 and 52-013, Responses to Requests for Additional Information." Accession No. ML090860873.

South Texas Project Nuclear Operating Company (STPNOC). 2008b. Letter from Greg Gibson (STPNOC, Manager, Regulatory Affairs, South Texas Project, Units 3 and 4) to U.S. Nuclear Regulatory Commission dated July 15, 2008 in response to NRC letters dated May 19 and July 2, 2008, "South Texas Project Units 3 and 4, Docket Nos. 52-012 and 52-013, Response to Requests for Additional Information." Accession No. ML082040684.

South Texas Project Nuclear Operating Company (STPNOC). 2009a. South Texas Project Units 3 and 4 Combined License Application, Part 3, Environmental Report. Revision 3, Bay City, Texas. Accession No. ML092931003.

Thanks,
Amoret

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From: Nash, Harriet

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Recipients:
"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"Muir, Jessie" <Jessie.Muir@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

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Options
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