RESPONSE TO OPSB STAFF DATA REQUESTS
Oregon Clean Energy Center
12-2959-EL-BGN
Set #2 – Received February 13, 2013
Response – February 20, 2013

Each comment is provided below in italics followed by the applicant's response.

13. Who have you been coordinating with at the USACE?

We spoke by phone with Joe Krawczyk at the Buffalo District on January 18, 2013 to discuss potential permitting requirements. Mr. Krawczyk informed us that both Driftmeyer and Johlin ditches would be considered jurisdictional resources, and noted that the proposed roadway crossings would most likely be activities covered by Nationwide Permit (NWP)-14 Transportation. He further noted that a Pre-Construction Notification (PCN) is only necessary if impacts are greater than 0.1 acre; if impacts are less, the activity would be automatically covered by NWP-14, and no pre-construction notification to the USACE is required. We have requested his confirmation in writing, and are coordinating further to determine whether the USACE would like to complete a site visit in support of formalizing and documenting that the proposed activities are covered by NWP-14 and no PCN is required.

14. How did you determine that installing new, larger and longer culverts would fall below the threshold for a Nationwide 404?

The USACE typically considers each ditch/stream crossings for transportation as a single and complete project. As noted in the OPSB application, the crossing of Driftmeyer Ditch will require an access road consisting of two lanes of travel plus a shoulder (total of 24 feet wide), and will be designed to maintain flow through the ditch by utilizing a culvert comprised of an approximately 121 x 77-inch elliptical pipe, as specified by the City of Oregon. The bank-full width is approximately 10 feet and is a reasonable measure of the ordinary high water mark. Preliminary estimates for this structure would require impact to approximately 1,960 square feet of ditch (0.045 acre), which is significantly less than the 0.1-acre threshold required for a PCN notification.

The proposed access road across Johlin Ditch will not require the shoulders, and will be 16 feet wide, using a 36-inch culvert. The bank-full width is an average of 8.3 feet and is a reasonable measure of the ordinary high water mark. Preliminary estimates for this crossing would impact less than for the Driftmeyer Ditch crossing, still significantly less than the 0.1-acre threshold required for PCN notification.

Though cumulative impacts are not typically considered for permitted crossings on transportation projects, even the sum of anticipated impacts is only 0.009 acres and remains well below the 0.1-acre threshold required for submission of a PCN. As noted in the field, the specific location of each crossing will be slightly adjusted to minimize the need for tree clearing. Final design of the roadways will maintain the level of impact anticipated. As design drawings are finalized, impacts will be scrutinized to confirm below-threshold impacts are maintained.

15. Do you plan to submit a Section 404 Pre-Construction Notification to the USACE?

At this time, it appears that a PCN will not be required. We anticipate submitting the surface water report to the USACE for verification and with that coordination expect to receive concurrence that submittal of a PCN is not required. It is important to the Project to have thorough documentation that all required permits have been applied for and obtained. Therefore, if it is required by the USACE, a PCN will be submitted for review.

16. *Will the site or facility where you plan to obtain your grading fill be identified in your NPDES permit for the project?*

We do not expect to know the source of fill used at the site. The contract with OCE's EPC contractor will specify and require the use of clean fill from a location that has all appropriate NPDES permits in place.

17. *Please provide the following additional information on the use of ammonia in the SCR system:*

    a. *The anticipated volume to be used on a daily basis;*

Ammonia consumption is directly correlated to the amount of NO_x produced by the combustion turbines and the duct burners. On an average day, ammonia consumption is estimated to be 10,800 pounds, or roughly 1,400 gallons. Even on the hottest of days, where the combustion turbines and duct burners are at full load for several hours, ammonia consumption would likely not exceed 2,000 gallons per day.

    b. *The size of storage tank(s) and maximum/minimum volumes anticipated to be stored;*

The preliminary on-site ammonia tank storage system consists of a 40 foot long, 9 foot diameter double-walled tank. This allows for a maximum of 18,600 gallons of 19% aqueous ammonia to be stored on-site, given a maximum volumetric tank capacity of 85%. In order to ensure high plant availability, the contents of the tank will not be allowed to drop below 20% capacity. Therefore, a minimum of 4,400 gallons will be stored on-site at all times. Truck(s) will resupply this tank approximately once per week. These preliminary figures may be finalized by the EPC contractor during the final stages of development.

    c. *All of the known risks associated with the accidental release of stored volumes of ammonia; and*

The use of 19% solution aqueous ammonia significantly reduces the risk that would otherwise be associated with the use of anhydrous ammonia. Use of the aqueous form eliminates the high internal energy associated with storage of anhydrous ammonia at elevated pressures, which could act as a driving force in the event of an accidental release. Spills associated with the aqueous form, as proposed, are much easier to contain that those associated with anhydrous ammonia and emissions from such spills are limited by the slow mass transfer from the surface of the spilled material. Facilities that store aqueous ammonia solutions containing less than 20% ammonia by weight are not subject to the Accidental Release requirements contained in §112r of the Federal Clean Air Act. As a comparison, household ammonia ranges in concentration from 5 to 10%.

Ammonia vapor has a sharp, irritating, pungent odor. The average odor threshold is well below any danger or damage level. However, ammonia can be toxic by inhalation and is carefully handled and managed to prevent releases. Ammonia is an irritant, and corrosive to the skin, eyes, respiratory tract and mucous membranes.

    d. *The safety measures that would be used to prevent an accidental release of ammonia.*

Safety is paramount for handling and storage of aqueous ammonia at the site. The tank, as noted above, will be double-walled to provide for additional protection. In addition, a containment area will be designed to surround the tank that would allow an accidental release to pool within a specific area. The containment area will be designed to hold the full contents of the tank plus a 25-year storm event, with additional freeboard. Tank alarms will immediately notify facility personnel in the event of an accidental release, and plastic balls will be stored on-site and deployed within the containment area in order to further reduce the potential exposed surface area. An emergency shower/eyewash designed to meet ANSI Z358.1-2009 standards will be located in proximity to the tank, but outside the containment area. Proper training in emergency procedures and emergency respirators will be available at the facility for use by

trained personnel. Curbing and containment will be used in the ammonia delivery area, as well, to prevent accidental release to the environment during ammonia deliveries.

18. *For each existing natural gas line that you may interconnect with to service the proposed site, provide:*

    a. *The natural gas pipeline company owner;*

    b. *The name, number, and designator of the pipeline;*

    c. *The diameter of the pipeline;*

    d. *The maximum allowable operating pressure of the pipeline;*

    e. *The normal operating pressure;*

    f. *The maximum throughput of the pipeline, corresponding to (d) above; and*

    g. *The normal throughput of the pipeline, corresponding to (e) above.*

OCE is pursuing a power contracting strategy which includes the sale of capacity and energy as two separate products in order to fully monetize the market value of the generating facility. In order to monetize energy value, OCE is currently working with a number of large energy companies for the sale of tolling rights to the OCE project. In a tolling-type transaction, the purchaser of tolling rights from the facility will have the obligation to provide fuel in exchange for the delivery of electric energy. By using this type of contracting strategy, OCE is eliminating the need, and associated risk, of the Project acquiring fuel commodity and transportation. The counterparties OCE is currently working with manage a significant amount of natural gas transport on both Panhandle Eastern Pipeline Company (PEPL) and ANR/TransCanada Pipeline Company (ANR/TCPL) and all believe they can deliver the needed natural gas commodity supply to the point of interconnection of the Project lateral via either ANR/TCPL or PEPL. These entities are well positioned to optimize these natural gas assets and, thus, feel secure in their ability to deliver natural gas using existing interstate transportation resources as opposed to having the interstate pipelines build incremental transport that will be dedicated to the Project at all times. This power contracting strategy is the most cost-effective strategy for a facility such as the Oregon Clean Energy Center in that it allows large market participants to optimize the operation of existing asset infrastructure to delivery natural gas commodity while eliminating the requirement for pipeline expansion and eliminates the OCE projects exposure to fuel delivery risk.

We understand that the questions above relate to adequate gas availability to meet the Project's needs without impact to other users. ANR/TCPL and PEPL pipelines from which gas would likely be conveyed via the lateral extending to the Project are identified below, and answers provided for each to the questions a through g, above.

ANR/TCPL has two lines that currently serve the Maumee Hub, described below.

- ANR North Maumee Pipeline (#515):
  - Diameter: 20 inches;
  - Maximum allowable operating pressure: 858 psig
  - Normal operating pressure: approximately 600 psi to the maximum allowable
  - Throughput at maximum operating pressure: 330 MMcf per day for the two lines together in the summer and 390 MMcf/d in the winter, with a capacity of about 60 MMcf/d in Line 511 and the balance from Line 515); and

- Throughput at normal operating pressure: summer flows range from about 100 – 120 MMcf/d; winter peak flow historically has approached full maximum capacity.

- ANR East Maumee (Line #511):
  - Diameter: 12 inches;
  - Maximum allowable operating pressure: 720 psi;
  - Normal operating pressure: approximately 600 psi to the maximum allowable;
  - Throughput at maximum operating pressure: 330 MMcf per day for the two lines together in the summer and 390 MMcf/d in the winter, with a capacity of about 60 MMcf/d in Line 511); and
  - Throughput at normal operating pressure: not known; summer flows range from about 100 – 120 MMcf/d; winter peak flow historically has approached full maximum capacity.

PEPL has a lateral coming from its intrastate line to the Maumee Hub. Although it is two pipelines in the same corridor, the laterals are collectively known as the "Maumee Lateral." Under this scenario, both pipelines would be tapped. One tap would be on the 22 inch pipeline and one on the 20 inch pipeline. Expected minimum receipt pressure is 540 to 550 psig with a 95% confidence interval. The maximum allowable operating pressure is 690 psig. Assume a 690 maximum allowable operating pressure, each pipeline could move a maximum rate of approximately 165,000 MMBtu/day, which converts to about 165 MMcf per day per pipe.

19. *Provide the maximum natural gas consumption of the proposed facility, per hour in MMcf.*

Operating at 799 megawatts, the Project will utilize 135,000 MMBtu per day, approximately 255 days per year.

20. *Explain how you plan to contract for adequate natural gas capacity to supply the proposed project, whether the contract will be for firm delivery service, and whether the contract will be full year or seasonal basis.*

As noted in the response to Question 18, OCE is pursuing a tolling transaction with potential purchasers of capacity and energy from the Project. In a tolling transaction, the purchaser of tolling rights will have the obligation to provide fuel in exchange for the delivery of electric energy. Therefore, OCE will not be directly acquiring fuel commodity and transportation.

21. *At the site inspection on February 6, 2013, you indicated that the City of Oregon's water treatment plant had available capacity to supply up to 32 MGD. Please provide documentation from the City of Oregon showing that the water treatment plant has the available capacity to meet the needs of the proposed facility.*

Attachment F is a letter from the City of Oregon documenting that the water treatment plant has the available capacity to meet the needs of the proposed facility.

22. *Staff has learned that the City of Oregon Wastewater Treatment Plant may undergo an upgrade in the near future. Will this expansion be necessary for you to obtain your Wastewater Discharge Industrial User Permit from the City of Oregon? When will the expansion be complete?*

The letter in Attachment F also documents that the wastewater treatment plant expansion is not necessary in order for the Project to obtain its Industrial User Permit from the City of Oregon. As noted in the letter, the expansion is projected to be complete in December 2017.

23. *At the site inspection on February 6, 2013, you indicated that you were aware of the Kleen Energy Natural Gas Explosion.[1] Please explain some of the safety measures, precautions, and procedures that Oregon Clean Energy will develop and utilize during construction of this site that incorporates the lessons learned, such as but not limited to:*

    a. *Installation and use of an emergency alarm system;*

    b. *Employee safety training; and*

    c. *Development and maintenance of a fire protection and prevention program for all phases of construction including during fuel system gas blows.*

The Kleen Energy project used natural gas for purging of pipes, contributing to the explosion at that facility. In response to that incident, the National Fire Prevention Association (NFPA) has issued a new standard NFPA 56 (PS) "Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Pipeline System." This standard requires that only inert gases or compressed air be used for all cleaning of pipes. OCE will comply with this important NFPA standard.

Safety is extremely important to OCE and additional procedures will be put in place prior to initiation of construction in order to anticipate and prepare for potential emergencies. An Emergency Response Plan will be prepared prior to construction mobilization and will be designed and written to assist the facility's management, employees and outside responding entities through emergency response actions at the facility. The plan will be developed in consultation with the City of Oregon and local emergency responders to address different types of potential emergencies; emergency resources (equipment or personnel); levels of emergency response; principles to be applied during a response; detailed measures for initial response, containment, rescue, first aid and evacuation; termination of an emergency; notification procedures; drills and training; and the process for updating and modifying emergency procedures.

Prior to mobilization for the construction phase of the Project, OCE and its EPC contractor will conduct the following activities as a component of Emergency Response Plan development:

- Interview occupational medical clinics within the vicinity of the Site to select the one deemed best suited based upon location, quality of care and commitment to injury management principles.
- Work closely with all local providers of emergency medical response to assess response times and capabilities of each responder. The assessment will include capabilities to rescue from heights. Cranes and aerial lifts would be provided during construction if such capabilities are not in place.
- Survey area hospitals to verify services and other details as an occupational health safeguard. The location of the nearest trauma center will also be verified.

[1] United States Chemical Safety Board (February 07, 2010). Kleen Energy Natural Gas Explosion, *Chemical Safety Board.* Retrieved from http://www.csb.gov/investigations/detail.aspx?SID=91.

- Conduct a site visit with local law enforcement agencies to formally initiate the construction process and familiarize local authorities with the schedule, planned activities, and other relevant details.

During construction, there will be continuous, on-site security staff to secure the site and construction materials. Police service may be needed for limited traffic control during construction, and will be compensated; thereby, not incurring additional operating or infrastructure costs. The Emergency Response Plan utilized during construction will be modified to reflect operational conditions, and similar detailed review of procedures and resources will occur to ensure appropriate measures are in place. In addition, the Emergency Response Plan will incorporate fire protection, detection and alarm systems for use throughout the construction process. This will include classification of various hazard areas, and providing adequate fire water and other fire-fighting systems to address various fire situations. Class "A" fires (ordinary combustibles), Class "B" fires (flammable liquid or gas) and Class "C" fires (electrical) will all be addressed.

24. What gas are you planning to use for fuel system gas blows if needed?

Inert gases or compressed air will be used for all cleaning of pipes during construction, consistent with the NFPA 56 (PS) "Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Pipeline Systems."

Additional Items

In response to verbal requests for clarification, the following is submitted:

- Attachment G provides an updated version of the Project water balance. Several rounding discrepancies were noted by OPSB staff. This version corrects those discrepancies such that complete balancing is reflected.

- Water storage tank sizing was requested by OPSB staff and is provided in Attachment H.

- OPSB staff requested similar information to that provided for aqueous ammonia in response to Question 17 with regard to the sulfuric acid and sodium hypochlorite proposed for use in the water treatment system. Both chemicals are corrosive and have the potential to cause severe irritation or corrosive damage. A circulating water chemical feed system will feed sulfuric acid, scale inhibitor, and sodium hypochlorite into the circulating water to provide protection to the circulating water system and associated equipment from scaling and corrosion. Chemical addition will be accomplished through skid-mounted, packaged chemical injection unit(s). Each chemical additive will have a dedicated, independent feed system including two full capacity (one operating, one spare) metering pumps. Spill containment and detection will be provided for all chemical storage areas including tanks and delivery areas. Chemical containment areas will be furnished with a drain that is normally closed. The containment areas will be sized to allow a full tank capacity spill without overflowing. Spilled material will be collected using mobile sump pumps.

  The Oregon Clean Energy Facility will have the following storage tanks and containment for each chemical. Preliminary storage volumes are an approximately 9,500 gallon storage tank each for sodium hypochlorite and sulfuric acid with containment for full tank capacity. A corrosion inhibitor tote tank will containment for the full tote tank capacity will also be provided.

- OPSB staff questioned the potential for sound level increase at the nearest residence (shown as R-1 in Attachment D), and recommended that, if a reduction in noise level is not practical, a "good neighbor agreement" be pursued. OCE has had preliminary discussions with that landowner, and

does not believe that property will be affected by noise from the Project. OCE is in the process of obtaining a good neighbor agreement.

Attachment F: City of Oregon Water and Wastewater Documentation

CITY OF OREGON OHIO
5330 SEAMAN ROAD • OREGON, OH 43616-2608
www.ci.oregon.oh.us

CITY OF OPPORTUNITY

DIRECTOR OF PUBLIC SERVICE

MICHAEL J. SEFERIAN, MAYOR
Phone (419) 698-7045
Fax (419) 691-0241

MICHAEL BEAZLEY
City Administrator
Phone: (419) 698-7095
Fax: (419) 690-7305

PAUL ROMAN, P.E.
Director of Public Service
Phone (419) 698-7047
Fax (419) 691-0241

OPSB Staff Data Requests – Set # 2 of Feb. 13, 2013

Case 12-2959-EL-BGN

Questions 21 and 22

21. City of Oregon Water Treatment Plant : The City of Oregon, Ohio owns, maintains and operates its own potable water treatment plant and potable water distribution system. Subject to executing a project agreement with OCEC, the City will supply the OCEC Project with two (2) sources of water, namely: (i) raw water to meet the Project's cooling tower water needs and (ii) treated potable water to meet the steam needs of the Project.

Raw Water – The City of Oregon Water Treatment Plant is registered with the Ohio Department of Natural Resources to withdraw up to 40 mgd, which is the registered raw water intake capacity from Lake Erie. The City's existing raw water pumping capacity is approximately 17 mgd. The City currently treats about 12.6 mgd of raw water to meet its peak summer potable water demand. Under the current plan, the City will increase raw water pumping capacity and divert raw water from its intake and pipe it directly to the Project, via a new raw water line dedicated solely to meet the Project's cooling tower needs. There is more than enough margin, between the City's raw water intake capacity and what the City needs for potable water supply, to meet the needs of the Project and not adversely influence the City's ability to serve its potable water customers.

Potable Water – The City's water treatment plant has a maximum capacity to provide potable water at a rate of 16 mgd. The City also owns and operates three (3) storage facilities providing a total of 10 million gallons of potable water storage. Since the City's peak summer potable water demand is about 12.6 mgd, the City has more than enough excess water treatment capacity to sell potable water to the Project to meet its steam cycle needs.

22. City of Oregon Wastewater Treatment Plant : The City of Oregon, Ohio owns, maintains and operates its own wastewater collection and Wastewater treatment plant (WWTP). Within North Lallendorf Road, the City maintains a 66 inch truck sanitary sewer which flows by gravity to the City's WWTP. The OCEC Project will connect a new wastewater discharge line into this existing City trunk sanitary sewer.

The City is undergoing an upgrade to its WWTP. In essence the secondary treatment capacity will be increased from 24 mgd to 36 mgd. The plan is to be able to treat and discharge more volume of wastewater during wet weather conditions.

Construction of this WWTP expansion is planned to begin in January 2014. The WWTP expansion project will be completed by December 2017.

The City is well aware of the volume and quality of wastewater to be discharged by the OCEC Project, into the City wastewater collection system. Since the Project's wastewater is a relatively small percentage of the City's WWTP flow, there is no need to complete the City's WWTP expansion, before accepting wastewater flow from the OCEC Project.

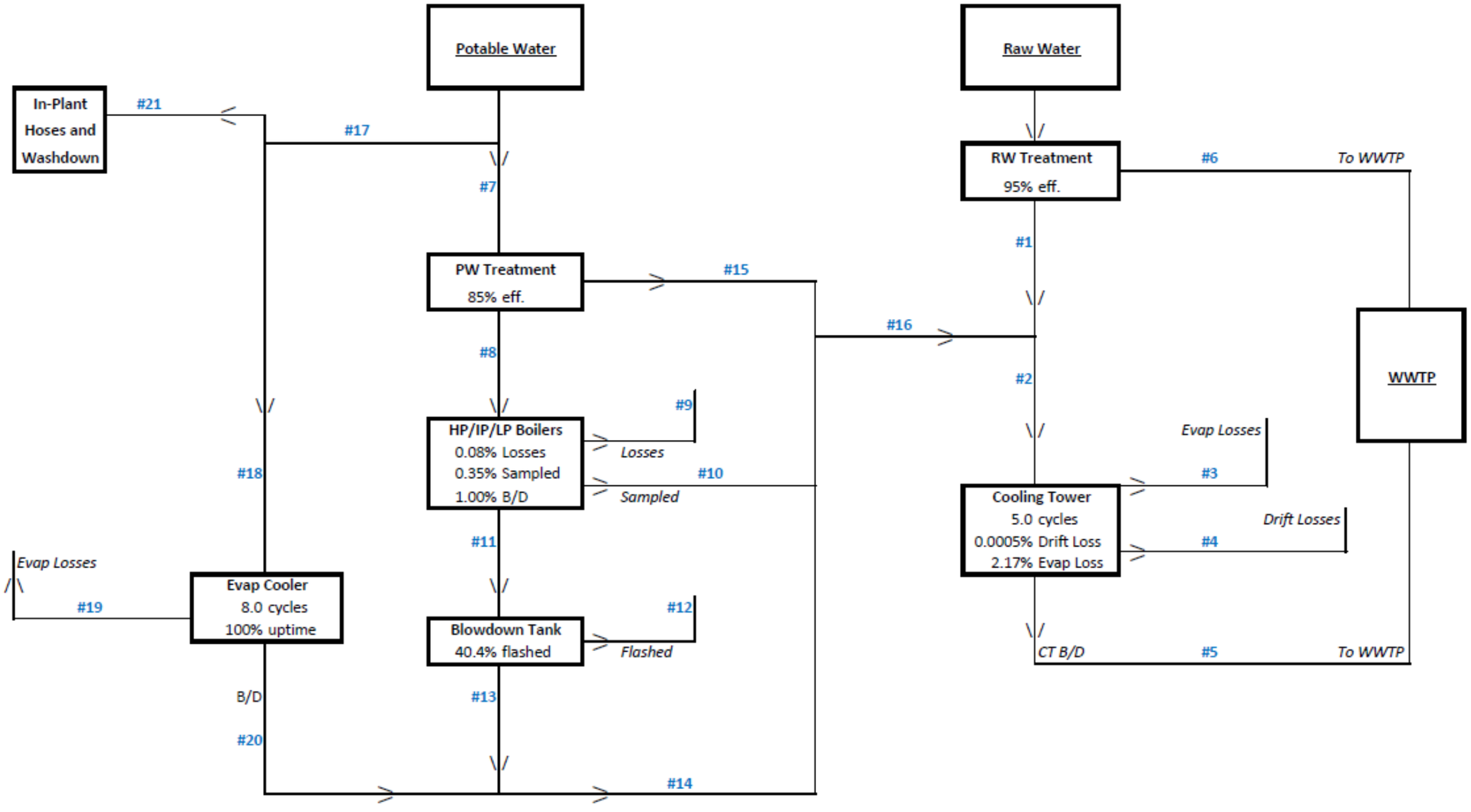
Paul Roman, P.E.
Director of Public Service

February 19, 2013

Attachment G: Updated Water Balance – Rev. 2

INPUTS [MGD]	MIN[2]	AVG[3]	PEAK[4]
Steam Cycle Circ Flow	4.18	4.29	4.95
Cooling Cycle Circ Flow	78.8	135.9	466.5
Evap Cooler Makeup	0.00	0.04	0.07

OUTPUTS [MGD]	MIN[2]	AVG[3]	PEAK[4]
Raw Water Needed	2.59	3.82	6.68
Potable Water Needed	0.07	0.11	0.16
Sent to WWTP	0.63	0.93	1.61



SUMMARY FLOW TABLE [MGD]			
ID	MIN[2]	AVG[3]	PEAK[4]
#1	2.461	3.629	6.346
#2	2.510	3.684	6.413
#3	2.009	2.948	5.131
#4	0.000	0.001	0.002
#5	0.501	0.736	1.280
#6	0.129	0.194	0.330
#7	0.070	0.071	0.079
#8	0.060	0.060	0.067
#9	0.003	0.003	0.004
#10	0.014	0.014	0.017
#11	0.042	0.043	0.045
#12	0.018	0.017	0.016
#13	0.024	0.026	0.029
#14	0.024	0.030	0.038
#15	0.011	0.011	0.012
#16	0.049	0.055	0.067
#17	0.000	0.039	0.081
#18	0.000	0.036	0.067
#19	0.000	0.032	0.058
#20	0.000	0.004	0.009
#21	0.000	0.003	0.014

NOTE: Values revised on 02/15/2013.

Notes:
1. All values shown are in units of million gallons per day (MGD).
2. The minimum case shown assumes duct burners and evap coolers off, operating at 800 MW net on a 0 F 100% RH day.
3. The average case shown assumes operation with duct burners off at ISO conditions, at 2 x 98% CT load, and evap coolers on.
4. The peak case shown assumes full duct-firing at the 95 F 50% RH design case, with both CTs at full load, and evap coolers on.

CONFIDENTIAL

NTE SOLUTIONS
for the infrastructure that runs our world

PRELIMINARY WATER BALANCE

OREGON CLEAN ENERGY CENTER
LUCAS COUNTY, OHIO

DRAWING NO.	REV.
OREGON-WB-001	7

Attachment H: Water Tank Sizing

Oregon Clean Energy Center
Preliminary Tank Sizes

Potable Water			Notes:
Fire Water			
Flow	2,500	gpm	
Duration	2	hrs	
	300,000	gal	
Process			
Flow	104	gpm	
Duration	8	hrs	
	50,014	gal	
Total			
Subtotal	350,014	gal	
Freeboard, etc.	10%		
Total	385,016		
Dimensions			
Aspect Ratio	1.0	to 1 (H/D)	
Diameter	40	ft	
Height	40	ft	
Foundation Diameter	42	ft	
Foundation Loading	2,284	psf	Spread footer some soil types, piling otherwise

Demin Water			Notes:
Demin			
Flow	48	gpm	
Duration	8	hrs	
	23,040	gal	
Total			
Subtotal	23,040	gal	
Freeboard, etc.	10%		
Total	25,344		
Dimensions			
Aspect Ratio	1.0	to 1 (H/D)	
Diameter	16	ft	Shop Fab
Height	16	ft	
Foundation Diameter	18	ft	
Foundation Loading	806	psf	Spread footer

Raw Water			Notes:
Cooling Tower			
Flow	4,545	gpm	
Duration	4	hrs	
	1,090,819	gal	
Total			
Subtotal	1,090,819	gal	
Freeboard, etc.	10%		
Total	1,199,901	gal	
Dimensions			
Aspect Ratio	0.7	to 1 (H/D)	
Diameter	66	ft	
Height	46	ft	
Foundation Diameter	68	ft	
Foundation Loading	2,730	psf	Spread footer some soil types, piling otherwise

Summary: Response to OPSB Second Set of Data Requests electronically filed by Teresa Orahood on behalf of Sally Bloomfield for Oregon Clean Energy, LLC