

Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

- Notes:**
1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. Middle ambient conditions are 45 degrees F and 60% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Cooling tower runs at night for 8 hours and NOx water for 16 hours.

Summary Balance:
 In Flow: 470,126 gpd
 Out Flow: 470,126 gpd
 Difference: 0

Units: All flows are in gallons per day

NOTES:

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER/LEAD	PROJECT MANAGER
A		ISSUED FOR REVIEW AND COMMENT	TAD	HGE	CH	HGE	MH

PRELIMINARY STATUS DATE REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
 LDE

APPROVED STATUS DATE REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED "HOLD" RETAINS PRELIMINARY STATUS.
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ORIGINATING PERSONNEL	PROFESSIONAL ENGINEER'S SEAL
DRAWN BY TAD	
CHECKED BY H.G. EISENBISE LEAD DESIGNER	
ENGINEER/TECH SPECIALIST C. HARTLINE PROJECT ENGINEERING MANAGER	
PROJECT MANAGER M. HOLDRIDGE	
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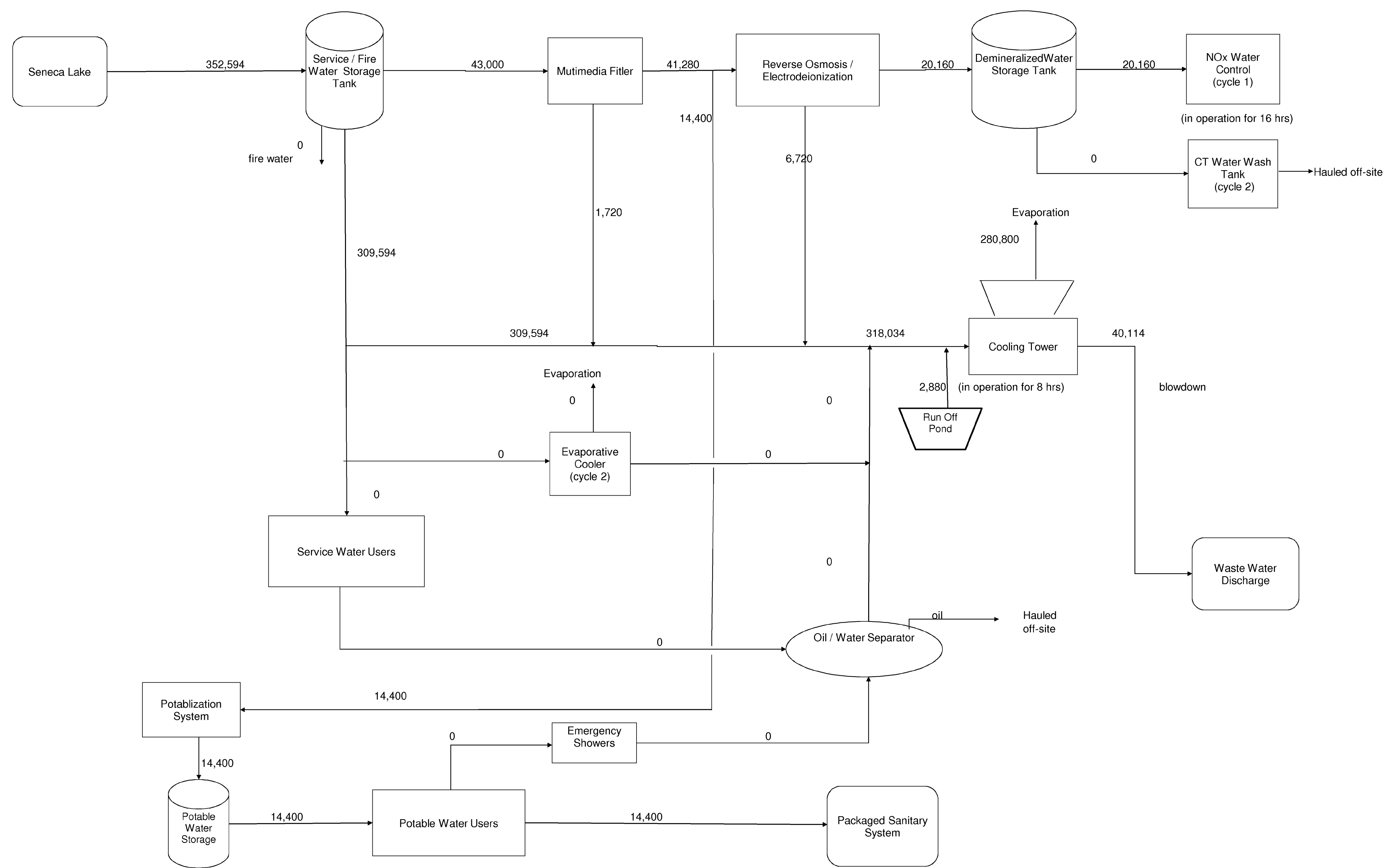


CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 1
 45° F, 60% RH

PRELIMINARY DESIGN

SCALE NONE	DRAWING SIZE ARCH D (36" x 24")
WORLDWIDE DWG. NO. CAES-1-DW-021-305-005	REV A



Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

Notes:
 1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. Low ambient conditions are -2 degrees F and 50% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Cooling tower runs at night for 8 hours and NOx water for 16 hours.

Summary Balance:
 In Flow: 355,474 gpd
 Out Flow: 355,474 gpd
 Difference: 0

Units: All flows are in gallons per day

NOTES:

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER	LEAD DESIG	PROJECT MANAGER	PROJECT
A		ISSUED FOR REVIEW AND COMMENT							

PRELIMINARY STATUS DATE REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
 APPROVED STATUS DATE REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED "HOLD" RETAINS PRELIMINARY STATUS.

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PROJECT MANAGER M. HOLDRIDGE	



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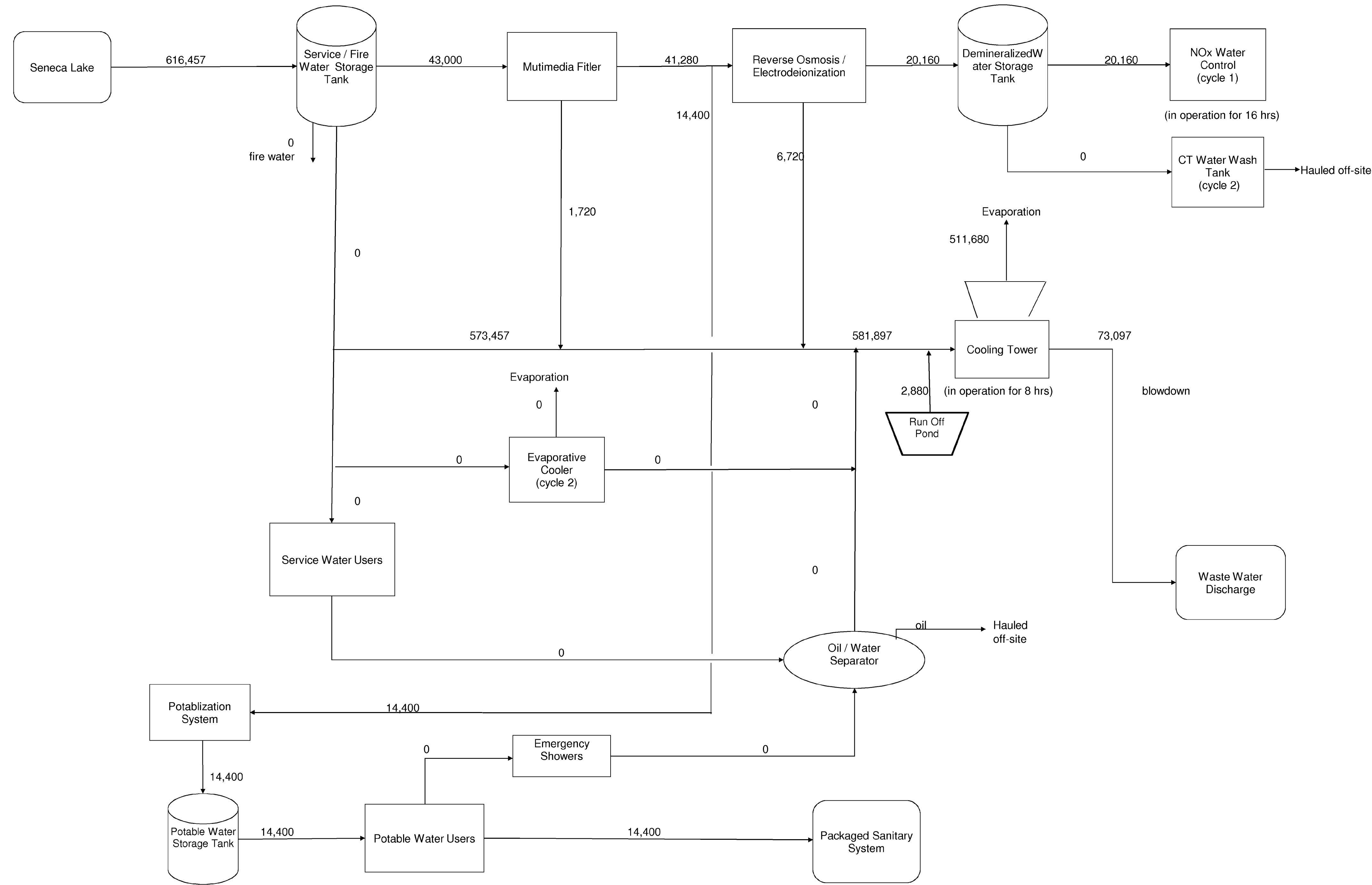
CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 1
 -2° F, 50% RH

SCALE NONE DRAWING SIZE ARCH D (36" x 24")
 WORLEYPARSONS DWG. NO. CAES-1-DW-021-305-007 REV A

PRELIMINARY DESIGN

NOTES:



Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

Notes:
 1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. High ambient conditions are 87 degrees F and 46% RH (day/night wet bulb assumed constant).
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Cooling tower runs at night for 8 hours and NOx water for 16 hours.

Summary Balance:
 In Flow: 619,337 gpd
 Out Flow: 619,337 gpd
 Difference: 0

Units: All flows are in gallons per day

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER	LEAD DES	PROJECT MANAGER	PROJECT
A		ISSUED FOR REVIEW AND COMMENT							

PRELIMINARY STATUS DATE REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
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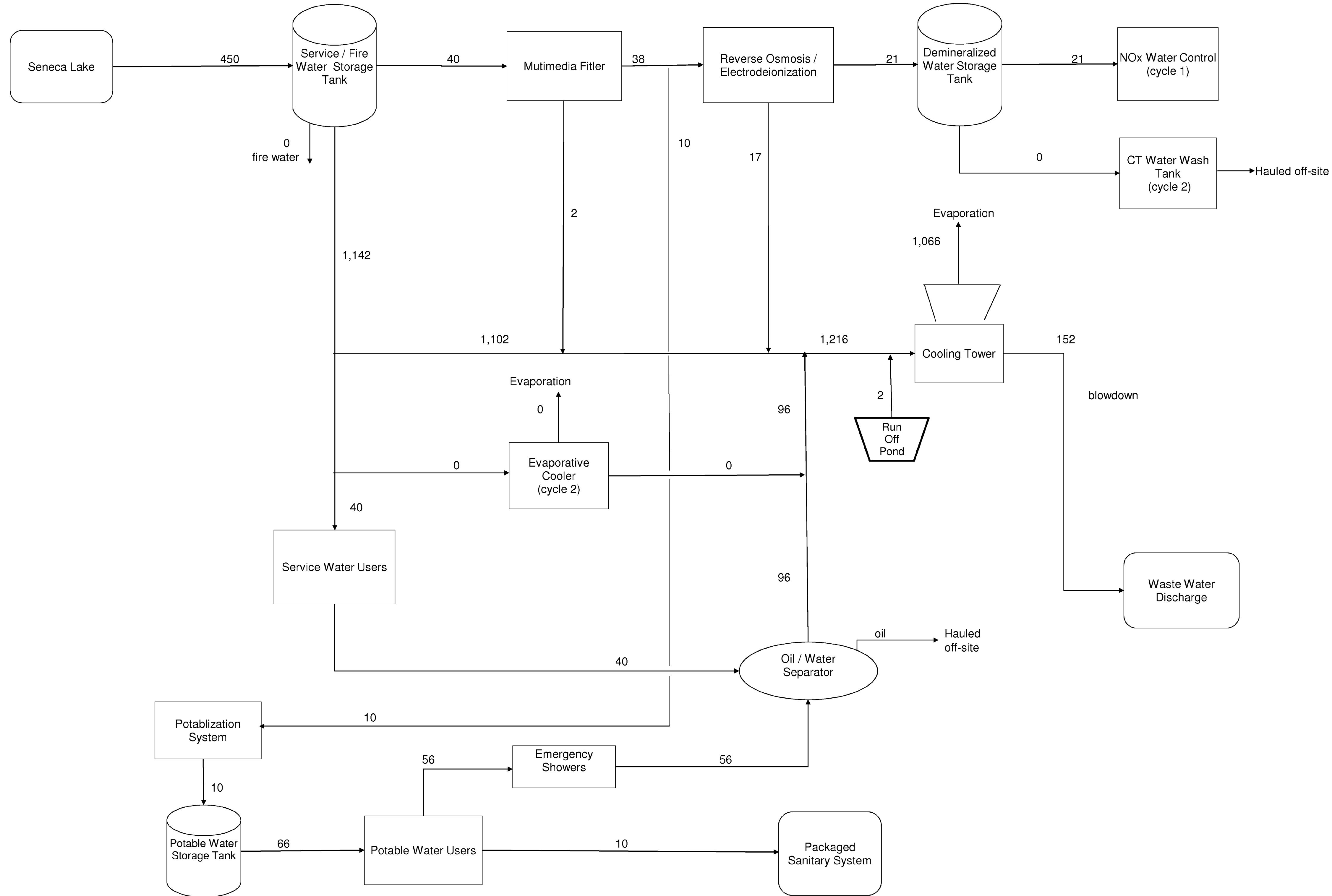
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CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 1
 87° F, 46% RH

SCALE NONE DRAWING SIZE ARCH D (36" x 24")
 WORLEYPARSONS DWG. NO. CAES-1-DW-021-305-003 REV A

PRELIMINARY DESIGN



Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

- Notes:**
1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. High ambient conditions are 87 degrees F and 46% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Maximum usage accounts for 2 additional service water hoses, employee shower use, and emergency shower use.
 8. Lake Seneca supply pumps have a maximum flow rate of 450 gpm. Tank storage dampens flow to the tank.

Units: All flows are in gallons per minute

PRELIMINARY DESIGN

NOTES:

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER/LEAD	PROJECT
A		ISSUED FOR REVIEW AND COMMENT	TAD	HGE	CH	HGE	MH

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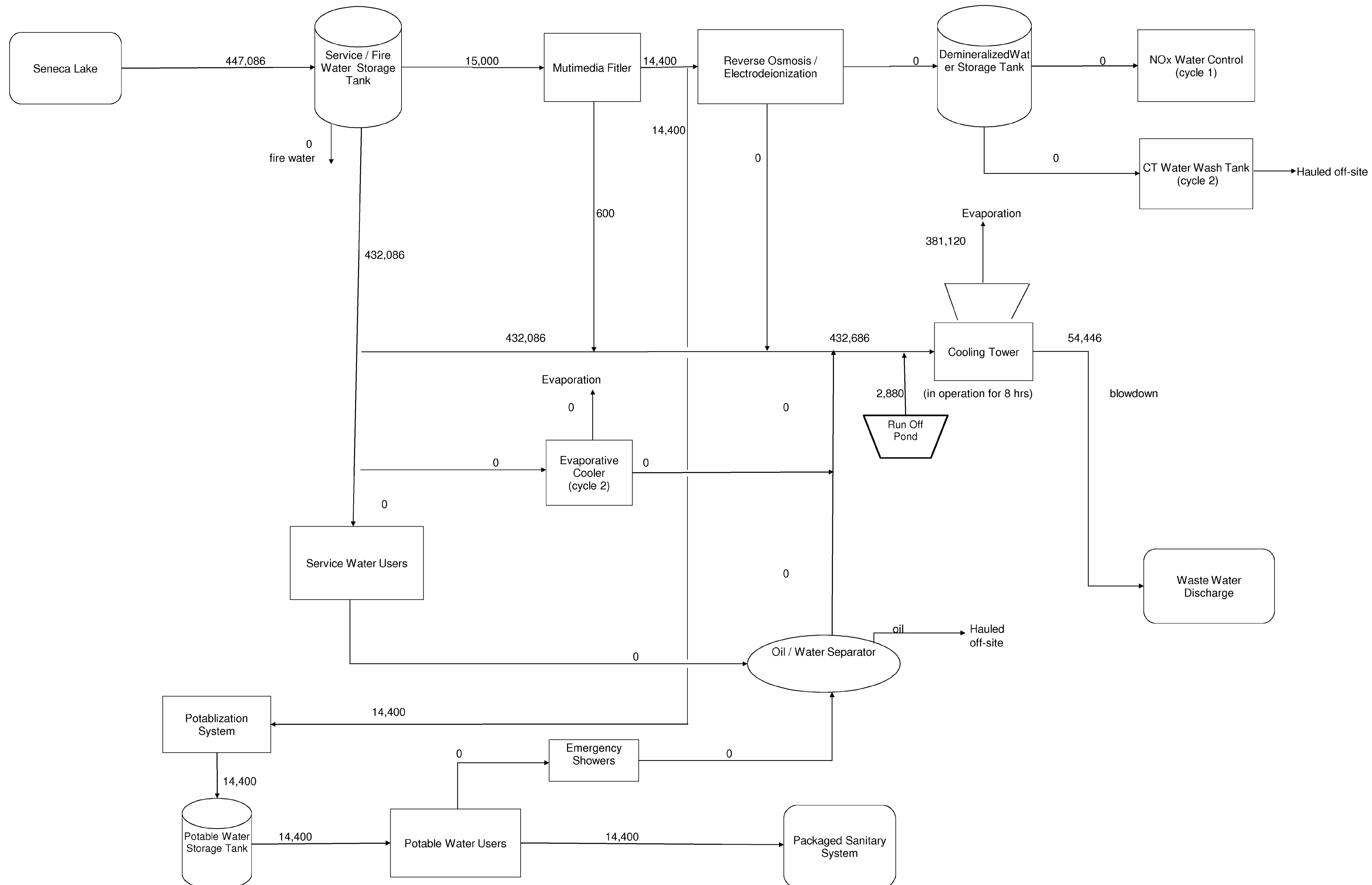
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CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 1
 MAXIMUM USAGE

SCALE: NONE DRAWING SIZE: ARCH D (36" x 24")
 WORLEYPARSONS DWG. NO. CAES-1-DW-021-305-001 REV A

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Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

- Notes:**
1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. Middle ambient conditions are 45 degrees F and 60% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Cooling tower runs at night for 8 hours.

Summary Balance:
 In Flow: 449,966 gpd
 Out Flow 449,966 gpd
 Differenc 0

Units: All flows are in gallons per day

NOTES:

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER	LEAD DES	PROJECT MANAGER	PROJECT
A		ISSUED FOR REVIEW AND COMMENT	TAD	HGE	CH	HGE	MH		

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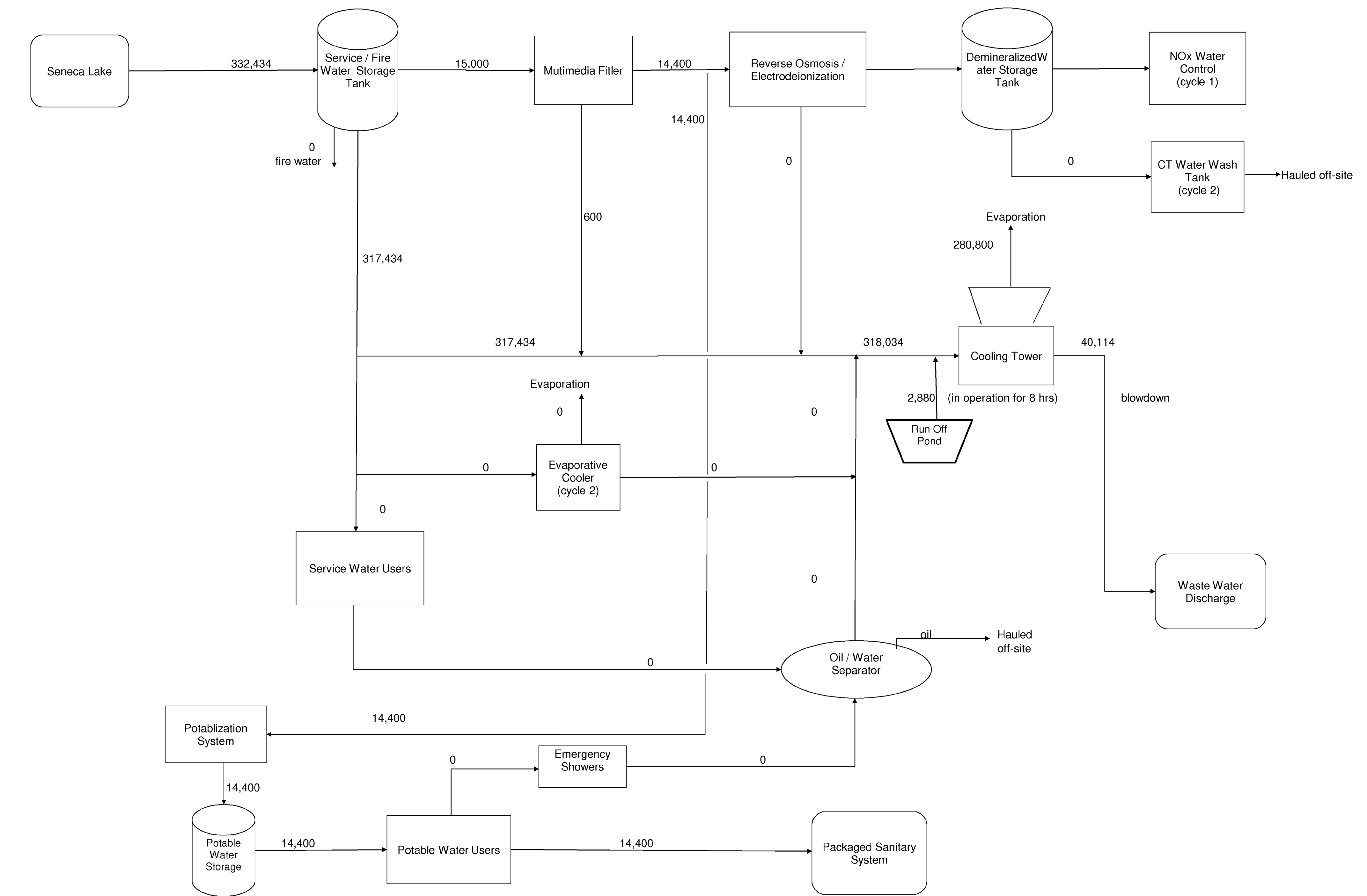
CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 2
 45° F, 60% RH

PRELIMINARY DESIGN

SCALE NONE	DRAWING SIZE ARCH D (36" x 24")
WORLDWIDE PARSONS DWG. NO. CAES-1-DW-021-305-006	REV A

NOTES:



Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

- Notes:**
1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. Low ambient conditions are -2 degrees F and 50% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Cooling tower runs at night for 8 hours.

Summary Balance:
 In Flow: 335,314 gpd
 Out Flow: 335,314 gpd
 Difference: 0

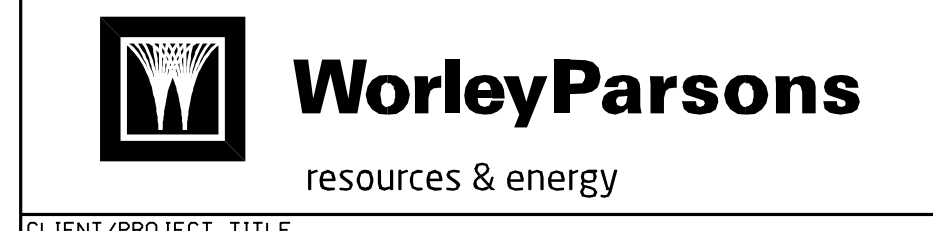
Units: All flows are in gallons per day

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER	LEAD DESIG	PROJECT MANAGER	PROJECT
A		ISSUED FOR REVIEW AND COMMENT	TAD	HGE	CH	HGE			

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ENGINEER/TECH SPECIALIST C. HARTLINE PROJECT ENGINEERING MANAGER		
PROJECT MANAGER M. HOLDRIDGE		
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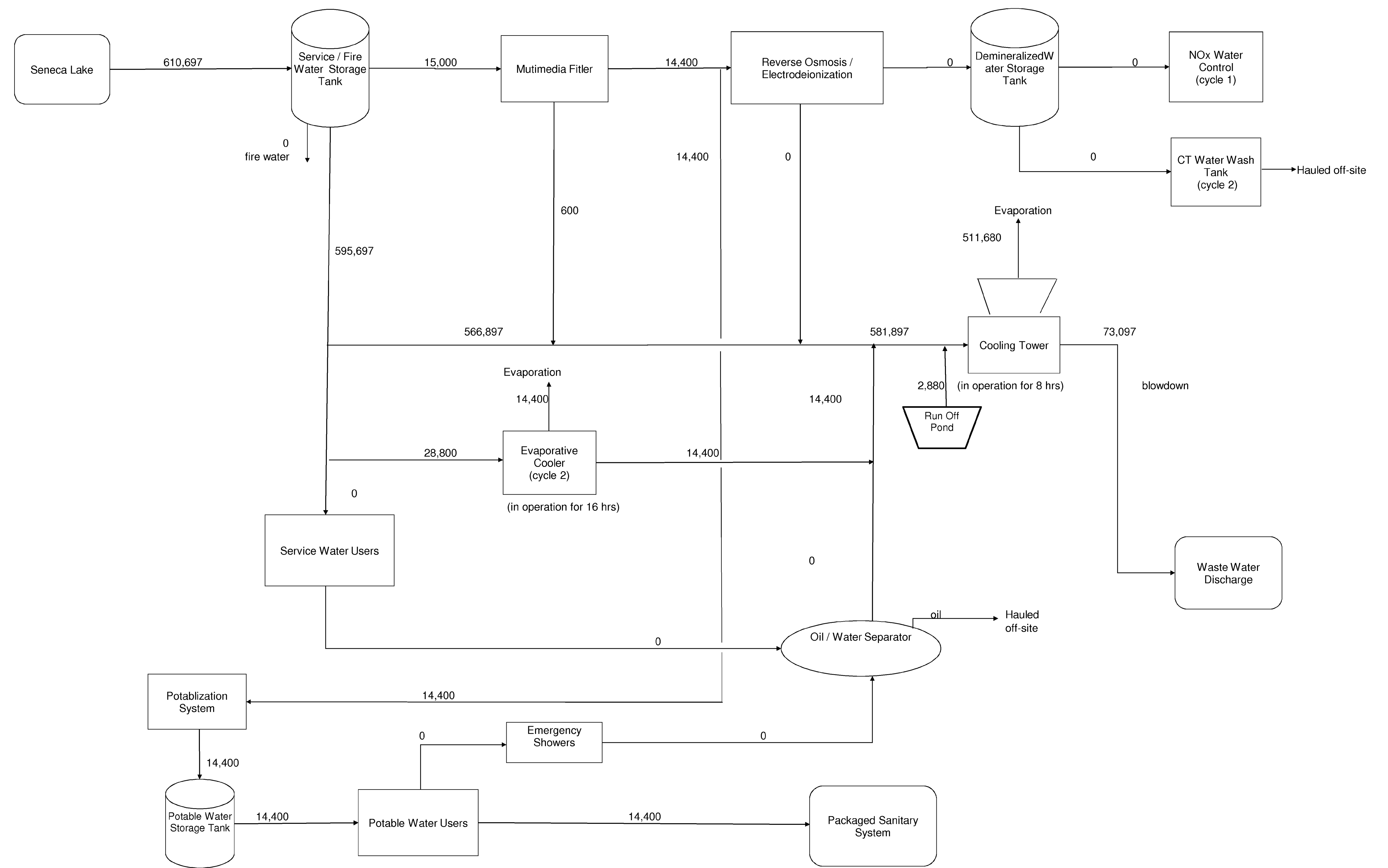
CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 2
 -2° F, 50% RH

PRELIMINARY DESIGN

SCALE	DRAWING SIZE	REV
NONE	ARCH D (36" x 24")	
CAES-1-DW-021-305-008		A

NOTES:



Legend:

COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

Notes:

1. Based on proposal data from Design Basis Document and Vendor proposals.
2. High ambient daytime conditions are 87 degrees F and 46% RH
3. Cooling tower blowdown is based on 8 COC.
4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
5. Evaporative cooler evaporation calculated from GE turbine Data.
6. The demineralization RO / EDI system reject is assumed to be 25%.
7. Cooling tower runs at night for 8 hours and evap. cooler for 16 hours.

Summary Balance:

In Flow: 613,577 gpd
 Out Flow: 613,577 gpd
 Difference: 0

Units: All flows are in gallons per day

PRELIMINARY DESIGN

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER/LEAD DESIG	PROJECT MANAGER	PROJECT
A		ISSUED FOR REVIEW AND COMMENT						

PRELIMINARY STATUS DATE REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
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ORIGINATING PERSONNEL	PROFESSIONAL ENGINEER'S SEAL
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ENGINEER/TECH SPECIALIST C. HARTLINE PROJECT ENGINEERING MANAGER	
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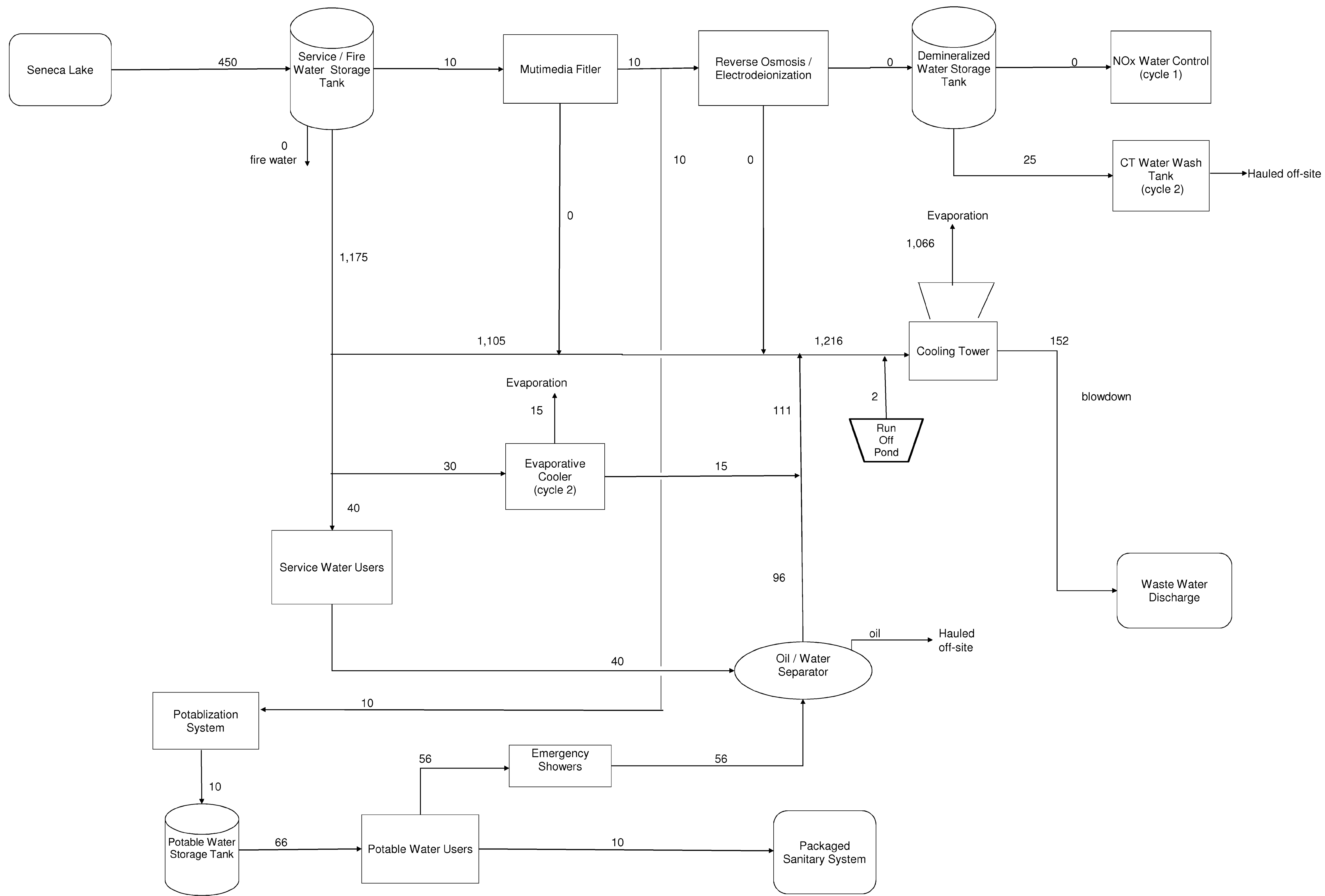


CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 2
 87° F, 46% RH

SCALE	DRAWING SIZE
NONE	ARCH D (36" x 24")

CAES-1-DW-021-305-004 A



Legend:
 COC: Cycles of Concentration
 CT: Combustion Turbine
 RO: Reverse Osmosis
 EDI: Electrodeionization

- Notes:**
1. Based on proposal data from Design Basis Document and Vendor proposals.
 2. High ambient conditions are 87 degrees F and 46% R.H.
 3. Cooling tower blowdown is based on 8 COC.
 4. Evaporative cooler is wetted media type, Evap Cooler Blowdown is based on 2 COC.
 5. Evaporative cooler evaporation calculated from GE turbine Data.
 6. The demineralization RO / EDI system reject is assumed to be 25%.
 7. Maximum usage accounts for 2 additional service water hoses, employee shower use, emergency shower use, and CT wash water tanks use.
 8. Lake Seneca supply pumps have a maximum flow rate of 450 gpm. Tank storage dampens flow to the tank.

Units: All flows are in gallons per minute

NOTES:

REV	DATE	DESCRIPTION	DRAWN	CHECKED	DESIGNED	ENGINEER/LEAD	PROJECT MANAGER
A		ISSUED FOR REVIEW AND COMMENT	TAD	HGE	CH	HGE	MH

PRELIMINARY STATUS DATE REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.

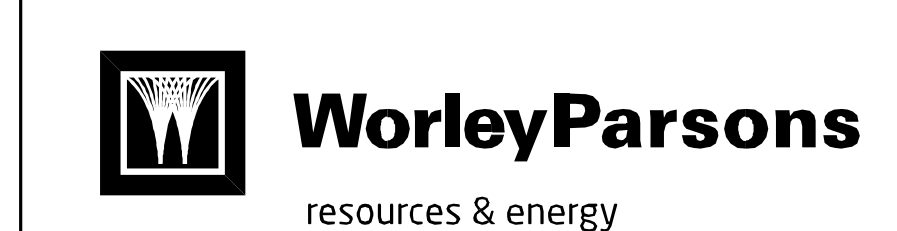
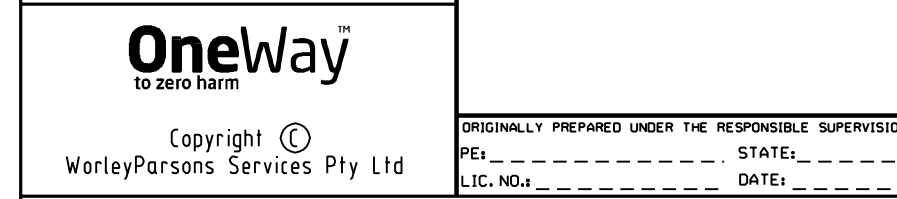
APPROVED STATUS DATE REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED "HOLD" RETAINS PRELIMINARY STATUS.

ORIGINATING PERSONNEL PROFESSIONAL ENGINEER'S SEAL

DRAWN BY
TAD
 CHECKED BY
H.G. EISENBISE
 LEAD DESIGNER

ENGINEER/TECH SPECIALIST
C. HARTLINE
 PROJECT ENGINEERING MANAGER

PROJECT MANAGER
M. HOLDRIDGE



CLIENT/PROJECT TITLE
 NYSEG
 SENECA COMPRESSED AIR ENERGY STORAGE (CAES) PROJECT

PRELIMINARY WATER BALANCE
 CYCLE 2
 MAXIMUM USAGE

SCALE NONE DRAWING SIZE ARCH D (36" x 24")
 WORLEYPARSONS DWG. NO. CAES-1-DW-021-305-002 REV A

PRELIMINARY DESIGN

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