



**SCE&G Nuclear  
Update  
04/10/2014**



# Safety

## Unit 1



### SCE&G Personnel

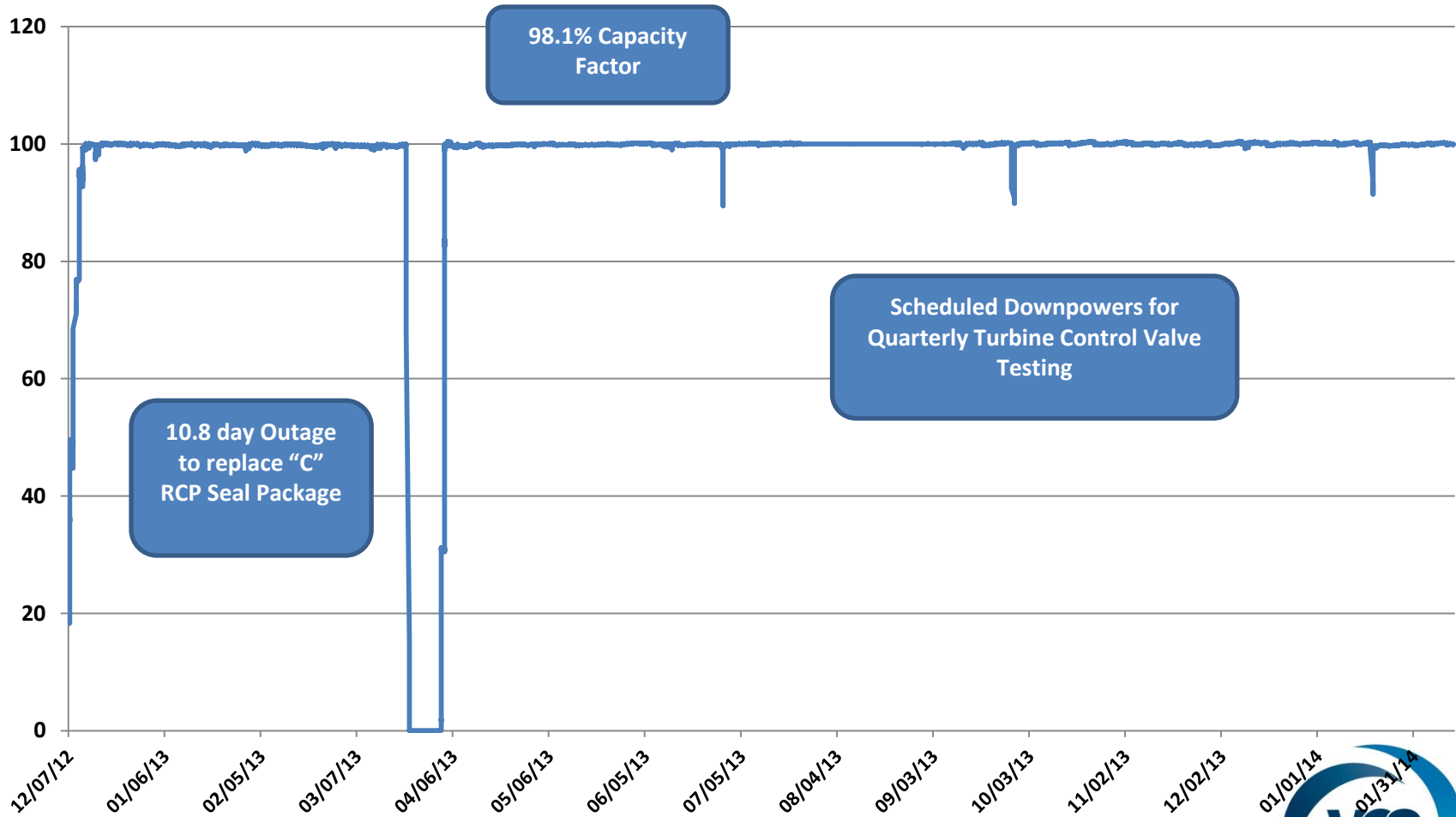
- **2013** Year End - No lost time or restricted cases  
(*> 11.4 million safe work hours*)
- One OSHA recordable injury in March 2013 after 650 days with no recordables
- **2014** YTD – No lost time OR OSHA recordable injuries

### Supplemental Personnel

- **2013** Year End – No Lost Time Injuries
- Three OSHA recordable injuries in 2013
- **2014** YTD – No lost time OR OSHA recordable injuries



# Power History: Cycle 21 to Date

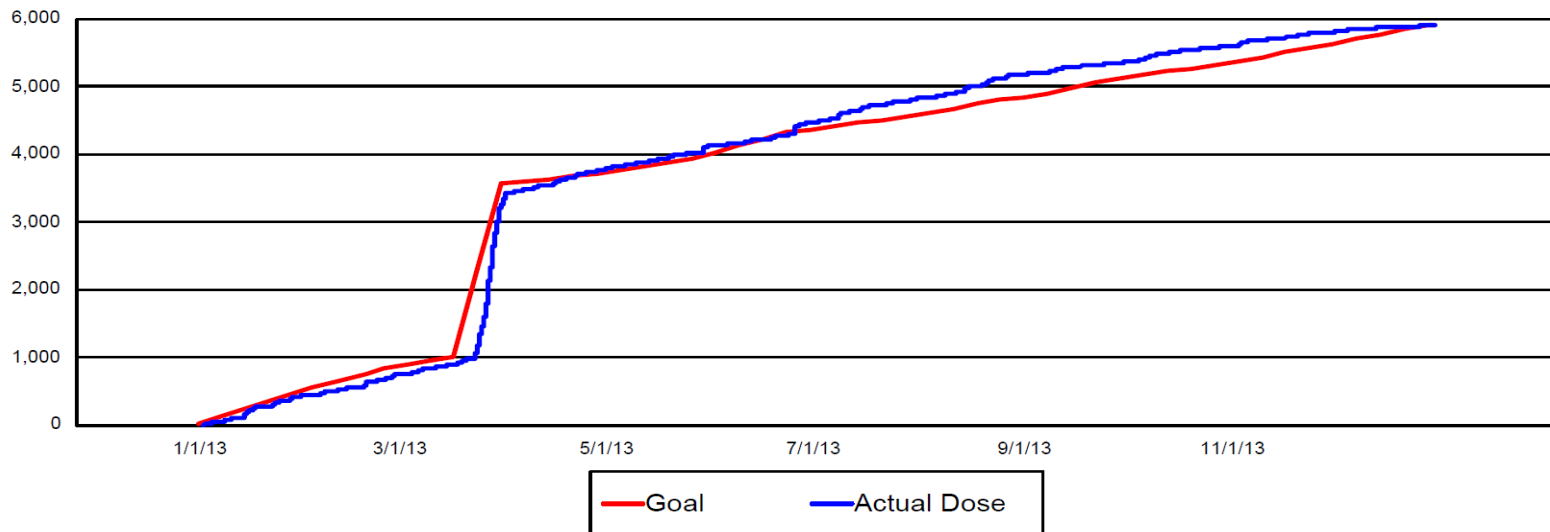


# 2013 Radiological Safety Performance

**South Carolina Electric & Gas Company**  
**Virgil C. Summer Nuclear Station**  
**Health Physics Services Dept.**  
**ALARA Dose Summary Report**



Annual Goal	=	5951	mRem	31-December-2013	12:01 am
Y-T-D Dose	=	5910	mRem		



Dose Goal adjusted on 4/25/13 by VCS ALARA Committee to incorporate 2.451 Rem received during scheduled 'C'RCP Maintenance Outage (3/23/2013 - 4/02/2013 )

# NUREG 0713

## VC Summer

- Lowest dose per site
- 2<sup>nd</sup> lowest per worker
- 2<sup>nd</sup> lowest per reactor year

Plant Name*	Reactor Years	Three-year Collective TEDE per Reactor Year 2009-2011	Three-year Collective TEDE per Site	Number of Workers with Measurable TEDE	Average TEDE per Worker	Total MW-Yrs	Average TEDE per MW-Yr
PRAIRIE ISLAND 1,2	6	27.759	166.552	1,899	0.088	2,927.2	0.06
SUMMER 1	3	29.920	89.759	1,469	0.061	2,801.0	0.03
COOK 1,2	6	30.075	180.452	2,651	0.068	4,718.1	0.04
PALO VERDE 1,2,3	9	30.210	271.888	4,598	0.059	10,832.3	0.03
ROBINSON 2	3	32.063	96.190	1,259	0.076	1,876.2	0.05
FARLEY 1,2	6	33.446	200.674	2,701	0.074	4,746.0	0.04
WATTS BAR 1	3	40.353	121.060	1,882	0.064	3,102.4	0.04
HARRIS	3	42.901	128.703	1,968	0.065	2,579.4	0.05
BRAIDWOOD 1,2	6	46.015	276.087	3,338	0.083	6,564.4	0.04
COMANCHE PEAK 1,2	6	46.157	276.943	3,555	0.078	6,832.9	0.04
KEWAUNEE	3	46.767	140.301	1,487	0.094	1,609.6	0.09
MCGUIRE 1,2	6	46.789	280.731	4,038	0.070	6,360.8	0.04
CALLAWAY 1	3	47.924	143.771	1,802	0.080	3,271.9	0.04
VOGTLE 1,2	6	47.966	287.794	3,034	0.095	6,578.2	0.04
GINNA	3	48.563	145.688	1,639	0.089	1,586.2	0.09
SOUTH TEXAS 1,2	6	49.687	298.120	3,158	0.094	7,196.5	0.04
SALEM 1,2	6	50.955	305.730	4,393	0.070	6,454.8	0.05
SEABROOK	3	52.484	157.453	2,724	0.058	3,206.3	0.05
TURKEY POINT 3,4	6	52.549	315.292	3,305	0.095	3,756.3	0.08
CATAWBA 1,2	6	53.123	318.740	3,391	0.094	6,353.8	0.05
ARKANSAS 1,2	6	53.165	318.992	4,053	0.079	5,072.2	0.06
CALVERT CLIFFS 1,2	6	53.262	319.570	2,428	0.132	4,894.1	0.07
SEQUOYAH 1,2	6	55.525	333.149	3,597	0.093	6,215.0	0.05
INDIAN POINT 2,3	6	57.123	342.739	5,000	0.069	5,682.2	0.06
BEAVER VALLEY 1,2	6	57.784	346.705	3,085	0.112	5,019.0	0.07
POINT BEACH 1,2	6	58.108	348.649	2,662	0.131	2,651.3	0.13
NORTH ANNA 1,2	6	58.530	351.178	2,569	0.137	4,694.2	0.07
OCONEE 1,2,3	9	61.802	556.217	5,925	0.094	7,098.4	0.08
BYRON 1,2	6	63.995	383.972	3,756	0.102	6,595.4	0.06
FORT CALHOUN	3	66.636	199.907	2,083	0.096	1,043.6	0.19
SAN ONOFRE 2,3	6	67.865	407.188	3,858	0.106	5,420.5	0.08
MILLSTONE 2,3	6	68.368	410.209	2,745	0.149	5,645.6	0.07
SURRY 1,2	6	69.758	418.550	3,320	0.126	4,476.2	0.09
WOLF CREEK 1	3	72.704	218.113	3,233	0.067	2,930.9	0.07
DIABLO CANYON 1,2	6	82.486	494.913	4,648	0.106	6,119.3	0.08
CRYSTAL RIVER 3	3	87.519	262.558	2,622	0.100	615.0	0.43
ST. LUCIE 1,2	6	104.241	625.448	4,546	0.138	4,131.7	0.15
WATERFORD 3	3	120.018	360.054	2,839	0.127	3,217.3	0.11
THREE MILE ISLAND 1	3	136.850	410.549	4,033	0.102	2,174.1	0.19
PALISADES	3	169.607	508.822	2,223	0.229	2,169.1	0.23
DAVIS-BESSE	3	180.359	541.076	2,946	0.184	2,190.4	0.25
<b>Totals and Averages</b>	<b>207</b>	<b>-</b>	<b>12,360.486</b>	<b>126,462</b>	<b>0.098</b>	<b>181,009.8</b>	<b>0.07</b>
<b>Average per Reactor-Year</b>	<b>-</b>	<b>59.712</b>	<b>-</b>	<b>611</b>	<b>-</b>	<b>874.4</b>	<b>-</b>

Sites where not all reactors had completed 3 full years of commercial operation as of December 31, 2011, are not included.

# 2013 Wrap-up/2014 Focus

## 2013

- Hostile Action Evaluated Exercise
- Accreditation for Operations Programs successfully renewed
- Initial Licensed Operator class; 11 of 12 successful



## 2014

- WANO (World Association of Nuclear Operators) Evaluation February 17 -28
- Force on Force Exercises March 3-7
- RF Outage 21 – Started April 5
- PI&R – August
- Component Design Basis Insp. (CDBI) Sept-Nov





# Refuel 21 Overview

- 52 Day Business Goal
  - Start Date April 4, 2014
  - Approx. 10,000 Work Order Steps
- Modification Scope
  - Modifications (18)
  - Significant Activities (25+)
- Main Schedule Drivers
  - NFPA 805 Modification to Safety related power (1DX / 1DA / 1DB)
  - Volumetric Head Inspection (possible repairs)
  - Steam Generator Cleaning and Eddy Current



# RF-21 Major Modifications

## **Regulatory Driven (Fire Safety – NFPA 805)**

- ✓ ECR 50800 – Safety Related power (115kV 1DA/1DB/1DX) cable routing
- ✓ ECR 50812 – Fire emergency disconnect switches
- ✓ ECR 50784 – Critical circuit fire protection upgrades
- ✓ ECR 50856 – Emergency communication upgrades

## **NND (Switchyard Upgrades)**

- ✓ ECR 50832/50834 – Replace 5 switchyard breakers
- ✓ ECR 50831/50806 – Remove ammeters from Main Control Board
- ✓ ECR 50777 – Switchyard Bus 3 Upgrades



# November 2008 –Aerial View

VCS Units 2 & 3  
location

VCS Unit 1  
Operating since 1982



- Plan to build two AP1000 units at this location in Fairfield County
- Westinghouse passive technology
- 60% SCE&G, 40% State utility; Santee Cooper
- Total energy output for both = 2234 megawatts

# Acquisition from Santee Cooper

- Santee Cooper negotiated in good faith with Duke, didn't come to terms
- SCE&G Agreed to purchase 5% from Santee Cooper
- Santee Cooper agreed not to sell any more until Unit 3 complete
- Acquired in 3 pieces (1%/2%/2%) starting at commercial ops of Unit 2





Cooling Towers

1000 + Cars

Concrete Plants

CR-10

MAB

Unit 3

HLD

CV Fabrication

Unit 2

Training & Storage

Turbine Building



# New Nuclear Project

U3 Containment  
Vessel Bottom  
Head



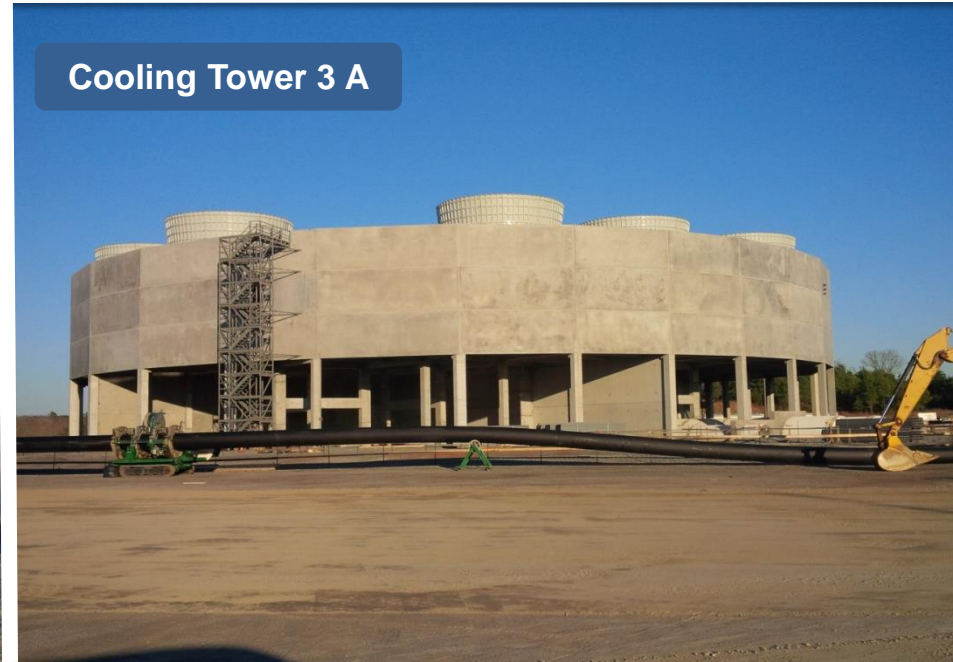
U2 Containment  
Vessel Ring 1



Cooling Tower 2 A



Cooling Tower 3 A





**Unit 2 Reactor Vessel**



**Unit 2 & 3 Accumulators**



**Unit 2 Moisture Separator Reheater**



**Unit 2 Core Makeup Tank**





LP Turbine Rotor



Main Transformer



Generator Sator



Condenser Water Boxes





# Unit 2 Module CA20



~70 ft

~70 ft

~45 ft

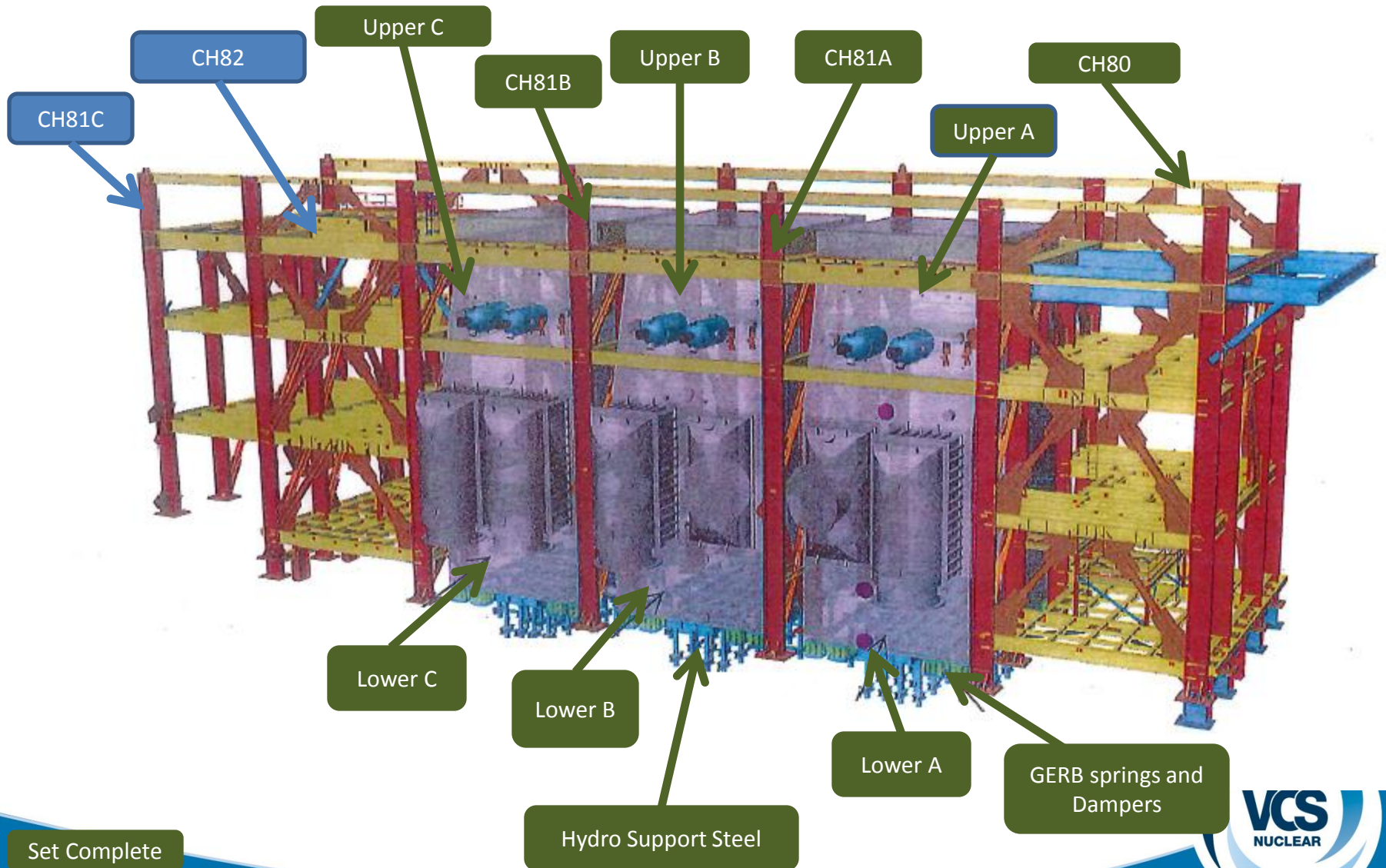




Unit 2 Turbine Building



# Unit 2 Turbine Building Layout



Set Complete

In progress

VCS  
NUCLEAR



# 'B' lower Condenser Lift





Unit 2 Turbine Building – CH80 Steel Set





Turbine Module CH81A Set



# Unit 2 Turbine Building Progress



CH 82

CH 81B

CH 81A

CH 80

C Upper Condenser

B Upper Condenser

A Upper Condenser

C Lower Condenser

B Lower Condenser

A Lower Condenser





# | Unit 3 Basemat Pour





Unit 3 CR-10  
on Basemat








260 Miles New  
Transmission Going  
Well – 254 miles  
existing right-of-way

11 10 2013





VCS Unit 2  
Core Barrel  
Fabricated  
by Toshiba in  
Japan

**TOSHIBA** V.C. Summer Unit 2   
**Core Barrel Assembly**  
Reactor Vessel Internals for AP1000







# Questions

