Exelon Generation®

Byron Generating Station

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Regional Administrator – Region III
U.S. Nuclear Regulatory Commission
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Byron Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Submittal of Knowledge and Abilities (K/A) statements that will be suppressed from the random exam generation process

It is our intent to develop the upcoming initial license exam scheduled for January 7 – January 25, 2019 in accordance with NUREG-1021, Revision 11, "Operator Licensing Examination Standards for Power Reactors."

In accordance with NUREG-1021, Revision 11, "Operating Licensing Examination Standards for Power Reactors", Byron Station is submitting for your review the list of K/A statements that will be suppressed from the random exam generation process in support of our January, 2019 license exam.

Should you have any questions concerning this letter, please contact Mr. Douglas Spitzer, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

Mark E. Kanavos
Site Vice President
Byron Generating Station

MEK/MK/LZ/rm

Enclosures: Byron Station Suppressed K/A statements

cc: Chief, NRC Operator Licensing Branch (without attachments)
NRC Senior Resident Inspector – Byron Station (without attachments)

2018 Byron Suppressed KA's

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Viewed KA	*Category Statement*	*KA Statement*	*RO Value*	*SRO Value*	*Suppression Basis*
000001	*Continuous Rod Withdrawal*				
AA1.06	Ability to operate and / or monitor the following as they apply to the Continuous Rod Withdrawal :	Rod transfer switches	3.0	2.9	N/A at Byron
AK1.14	Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal:	Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	3.4	3.7	N/A at Byron
000003	*Dropped Control Rod*				
AA1.04	Ability to operate and / or monitor the following as they apply to the Dropped Control Rod:	Control rod drive safety rod out limit bypass switch or key	3.4	3.3	N/A at Byron
AK1.13	Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:	Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	3.2	3.6	N/A at Byron
AK2.03	Knowledge of the interrelations between the Dropped Control Rod and the following:	Metroscope	3.1	3.2	N/A at Byron
AK3.01	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod:	When ICS logic has failed on a dropped rod, the load must be reduced until flux is within specified target bank	3.5	3.9	N/A at Byron
AK3.02	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod:	Reactor runback with a dropped control rod	3.3	3.7	N/A at Byron: Byron manually reduces power, but doesn't auto runback
AK3.03	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod:	Turbine automatic runback with reactor in order to balance power output	3.4	3.7	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod:	Actions contained in EOP for dropped control rod	3.8	4.1	N/A at Byron
000005	*Inoperable/Stuck Control Rod*				
AA1.03	Ability to operate and / or monitor the following responses as they apply the Inoperable / Stuck Control Rod:	Metroscope	3.4	3.4	N/A at Byron
AA2.02	Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Roc:	Difference between jog and run rod speeds, effect on CRDM of stuck rod	2.5	3.0	N/A at Byron
AK1.04	Knowledge of the operational implications of the following concepts as they apply to Inoperable/Stuck Control Rod:	Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	3.0	3.4	N/A at Byron
AK2.03	Knowledge of the interrelations between the Inoperable / Stuck Control Rod and the following:	Metroscope	3.1	3.3	N/A at Byron
000008	*Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open)*				
AA2.04	Ability to determine or interpret the following as they apply to the Pressurizer Vapor Space Accident:	High-temperature computer alarm and alarm type	3.2	3.4	N/A at Byron
AA2.09	Ability to determine or interpret the following as they apply to the Pressurizer Vapor Space Accident:	PZR spray block valve controls and indicators	3.6	3.7	N/A at Byron

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000009	*Small Break LOCA*				
EA1.03	Ability to operate and monitor the following as they apply to a small break LOCA:	Low-pressure SWS activity monitor	3.2	3.2	N/A at Byron
EA1.18	Ability to operate and monitor the following as they apply to a small break LOCA:	Balancing of HPI loop flows	3.4	3.2	N/A at Byron
EA2.09	Ability to determine or interpret the following as they apply to a small break LOCA:	Low-pressure SWS activity monitor	2.8	3.3	N/A at Byron
EA2.17	Ability to determine or interpret the following as they apply to a small break LOCA:	Total flow meter	3.3	3.9	N/A at Byron
EA2.22	Ability to determine or interpret the following as they apply to a small break LOCA:	Charging flow trend recorder	3.0	3.3	N/A at Byron
EA2.35	Ability to determine or interpret the following as they apply to a small break LOCA:	Conditions for throttling or stopping reflux boiling spray	3.4	4.1	N/A at Byron
EK3.25	Knowledge of the reasons for the following as they apply to the small break LOCA:	Monitoring of in-core T-cold	3.6	3.9	N/A at Byron
EK3.27	Knowledge of the reasons for the following as they apply to the small break LOCA:	Manual depressurization or HPI recirculation for sustained high pressure	3.6	3.8	N/A at Byron
000011	*Large Break LOCA*				
EA1.02	Ability to operate and monitor the following as they apply to the Large Break LOCA:	Reflux boiling sump level indicators	3.8	4.1	N/A at Byron
EA1.16	Ability to operate and monitor the following as they apply to the Large Break LOCA:	Balancing of HPI loop flows	3.5	3.5	N/A at Byron
EA2.12	Ability to determine or interpret the following as they apply to the Large Break LOCA:	Conditions for throttling or stopping reflux boiling spray	3.6	3.8	N/A at Byron
EK3.07	Knowledge of the reasons for the following responses as they apply to the Large Break LOCA:	Stopping charging pump bypass flow	3.5	3.6	N/A at Byron
000015 / 000017	*Reactor Coolant Pump (RCP) Malfunctions*				
AA1.04	Ability to operate and / or monitor the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):	RCP ventilation cooling fan run indicators	2.5	2.5	N/A at Byron
AA1.19	Ability to operate and monitor the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):	Power transfer confirm lamp	2.9	3.0	N/A at Byron
AA2.09	Ability to determine or interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):	When to secure RCPs on high stator temperatures	3.4	3.5	Byron has no procedural requirement to stop RCPs based on Stator Temperature.
AK1.03	Knowledge of the operational implications of the following concepts as they apply to Reactor Coolant Pump Malfunctions (Loss of RC Flow):	The basis for operating at a reduced power level when one RCP is out of service	3.0	4.0	N/A at Byron

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AK3.04	Knowledge of the reasons for the following responses as they apply to Reactor Coolant Pump Malfunctions (Loss of RC Flow):	Reduction of power to below the steady state power-to-flow limit	3.1	3.2	N/A at Byron
AK3.05	Knowledge of the reasons for the following responses as they apply to Reactor Coolant Pump Malfunctions (Loss of RC Flow):	Shift of T-ave sensors to the loop with the highest flow	2.8	3.0	N/A at Byron
000024	*Emergency Boration*				
AA1.01	Ability to operate and / or monitor the following as they apply to Emergency Boration:	Use of spent fuel pool as backup to BWST	2.7	3.4	No flowpath available at Byron
AA1.08	Ability to operate and / or monitor the following as they apply to Emergency Boration:	Pump speed controlled to protect pump seals	2.7	3.0	N/A at Byron
AA1.11	Ability to operate and / or monitor the following as they apply to Emergency Boration:	BIT suction and recirculation valves	2.9	2.7	N/A at Byron
AA1.24	Ability to operate and / or monitor the following as they apply to Emergency Boration:	BIT inlet and outlet valve switches and indicators	3.2	3.1	N/A at Byron
000025	*Loss of Residual Heat Removal System (RHRS)*				
AA1.05	Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:	Raw water or sea water pumps	2.7	2.6	N/A at Byron
AA1.13	Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:	SWS radiation monitors	2.5	2.6	N/A at Byron
AA1.19	Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:	Block orifice bypass valve controllers and indicators	2.6	2.4	N/A at Byron
AA1.22	Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:	Obtaining of water from BWST for LPI system	2.9	2.8	N/A at Byron
AA2.05	Ability to determine or interpret the following as they apply to the Loss of Residual Heat Removal System:	Limitations on LPI flow and temperature rates of change	3.1	3.5	N/A at Byron
AK2.04	Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following:	Raw water or sea water pumps	2.4	2.4	N/A at Byron
000026	*Loss of Component Cooling Water (CCW)*				
AA1.03	Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water:	SWS as a backup to the CCWS	3.6	3.6	N/A at Byron
AA1.04	Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water:	CRDM high-temperature alarm system	2.7	2.8	N/A at Byron
AK3.01	Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water:	The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCWS coolers	3.2	3.5	N/A at Byron
000027	*Pressurizer Pressure Control System (PZR PCS) Malfunction*				
AA1.04	Ability to operate and / or monitor the following as they apply the Pressurizer Pressure Control Malfunctions:	Pressure recovery, using emergency-only heaters	3.9	3.6	N/A at Byron
AA1.05	Ability to operate and / or monitor the following as they apply the Pressurizer Pressure Control Malfunctions:	Transfer of heaters to backup power supply	3.3	3.2	N/A at Byron

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AA2.13	Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions:	Seal return flow	2.8	2.9	Seal return flow not impacted by Pzr pressure changes
000028	*Pressurizer (PZR) Level Control Malfunction*				
AA2.13	Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions:	The actual PZR level, given uncompensated level with an appropriate graph	2.9	3.2	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Pressurizer Level Control Malfunctions:	Change in PZR level with power change, even though T-ave constant, due to loop size difference	2.9	3.0	N/A at Byron
000029	*Anticipated Transient Without Scram (ATWS)*				
EA1.04	Ability to operate and monitor the following as they apply to an ATWS:	BIT inlet valve switches	3.9	3.8	N/A at Byron
EA1.05	Ability to operate and monitor the following as they apply to an ATWS:	BIT outlet valve switches	3.7	3.6	N/A at Byron
EA2.10	Ability to determine or interpret the following as they apply to an ATWS:	Positive displacement charging pumps	3.1	3.4	N/A at Byron
EK3.03	Knowledge of the reasons for the following responses as they apply to the ATWS:	Opening BIT inlet and outlet valves	3.7	3.6	N/A at Byron
EK3.04	Knowledge of the reasons for the following responses as they apply to the ATWS:	Closing the normal charging header isolation valves	3.1	3.1	N/A at Byron
EK3.05	Knowledge of the reasons for the following responses as they apply to the ATWS:	Closing the centrifugal charging pump recirculation valve	3.4	3.5	N/A at Byron
000032	*Loss of Source Range Nuclear Instrumentation*				
AA2.03	Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation:	Expected values of source range indication high voltage is automatically removed	2.8	3.1	N/A to Byron SR fission chamber detectors
AA2.09	Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation:	Effects of improper HV setting	2.5	2.9	N/A to Byron SR fission chamber detectors
AK1.01	Knowledge of the operational implications of the following concepts as they apply to Loss of Source Range Nuclear Instrumentation:	Effects of voltage changes on performance	2.5	3.1	N/A to Byron SR fission chamber detectors
000033	*Loss of Intermediate Range Nuclear Instrumentation*				
AA2.11	Ability to determine and interpret the following as they apply to Loss of Intermediate Range Nuclear Instrumentation:	Loss of compensating voltage	3.1	3.4	N/A to Byron IR fission chamber detectors
AK1.01	Knowledge of the operational implications of the following concepts as they apply to Loss of Intermediate Range Nuclear Instrumentation:	Effects of voltage changes on performance	2.7	3.0	N/A to Byron IR fission chamber detectors

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000037	*Steam Generator (S/G) Tube Leak*				
AA1.03	Ability to operate and / or monitor the following as they apply to the Steam Generator Tube Leak:	Loop isolation valves	3.0	2.9	N/A at Byron
AK3.01	Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak:	Collection of Condensate in air ejector monitor due to its failure	2.3	2.6	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak:	Use of "feed and bleed" process	2.5	2.9	N/A at Byron
000038	*Steam Generator Tube Rupture (SGTR)*				
EK3.07	Knowledge of the reasons for the following responses as they apply to the SGTR:	RCS loop isolation valves	3.4	3.8	N/A at Byron
000040	*Steam Line Rupture*				
AA1.21	Ability to operate and / or monitor the following as they apply to the Steam Line Rupture:	Vibration alarm	2.3	2.5	N/A at Byron
AA1.22	Ability to operate and / or monitor the following as they apply to the Steam Line Rupture:	Load sequencer status lights	3.0	3.0	N/A at Byron
000056	*Loss of Offsite Power*				
AA1.15	Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power:	Service water booster pump	2.7	2.9	N/A at Byron
AA1.20	Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power:	Speed switch room ventilation fan	3.0	3.0	N/A at Byron
AA2.02	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:	ESF load sequencer status lights	3.5	3.6	N/A at Byron
AA2.11	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:	Operational status of service water booster pump	2.9	2.9	N/A at Byron
AA2.29	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:	Service water booster pump ammeter and flowmeter	3.0	3.2	N/A at Byron
AA2.38	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:	Load sequencer status lights	3.7	3.8	N/A at Byron
000057	*Loss of Vital AC Electrical Instrument Bus*				
AA2.08	Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:	Reactor power digital display and remote flux meter	3.4	3.5	N/A at Byron
000062	*Loss of Nuclear Service Water*				
AA1.04	Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS):	CRDM high-temperature alarm system	2.7	2.8	N/A at Byron
AK3.01	Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water (SWS):	The conditions that will initiate the automatic opening and closing of the SES isolation valves to the nuclear service water coolers.	3.2	3.5	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water (SWS):	Effect on the nuclear service water discharge flow header of a loss of CCW	3.5	3.7	N/A at Byron
AA1.03	Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS):	SWS as a backup to the CCWS	3.6	3.6	N/A at Byron

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000065	*Loss of Instrument Air*				
AA2.02	Ability to determine and interpret the following as they apply to the Loss of Instrument Air:	Relationship of flow readings to system operation	2.4	2.6	N/A at Byron
AA2.07	Ability to determine and interpret the following as they apply to the Loss of Instrument Air:	Whether backup nitrogen supply is controlling valve position	2.8	3.2	N/A at Byron Backup nitrogen is hooked up via manual actions from a N2 bottle locally per our procedure 0BOA SEC-4
AK3.07	Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air	Backup of compressor cooling water	2.3	2.5	Byron has aircooled compressors
000067	*Plant Fire on Site*				
AA2.10	Ability to determine and interpret the following as they apply to the Plant Fire on Site:	Time limit of long-term breathing air system for control room	2.9	3.6	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site:	Actions contained in EOP for plant fire on site	3.3	4.1	N/A at Byron
000068	*Control Room Evacuation*				
AA1.09	Ability to operate and / or monitor the following as they apply to the Control Room Evacuation:	Synchroscope key	3.1	2.7	N/A at Byron
AA1.20	Ability to operate and / or monitor the following as they apply to the Control Room Evacuation:	Indicators for operation of startup transformer	3.2	3.2	N/A at Byron
AK3.04	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:	Filling the feedwater system and closing the AFW pump discharge valve	3.0	3.2	N/A at Byron
AK3.05	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:	Repositioning valves to isolate and drain the AFW pump turbine and steam supply header	2.5	3.0	N/A at Byron
AK3.16	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:	Fail-open of the control room doors for personnel evacuation	2.8	3.3	N/A at Byron
000074	*Inadequate Core Cooling*				
EA1.03	Ability to operate and / or monitor the following as they apply to a Inadequate Core Cooling:	The alternate control station for turbine bypass valve operation	3.9	3.9	N/A at Byron
EA1.14	Ability to operate and / or monitor the following as they apply to a Inadequate Core Cooling:	Alarm for loss of subcooling margin	4.1	4.2	N/A at Byron
000076	*High Reactor Coolant Activity*				
AK3.02	Knowledge of the reasons for the following responses as they apply to the High Reactor Coolant Activity:	Increased CCW flow	2.4	2.6	N/A at Byron
001000	*Control Rod Drive System*				
A1.08	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls:	Verification that CRDS temperatures are within limits before starting	2.6	3.0	N/A at Byron
A1.10	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating	Location and operation of controls and indications for CRDS component cooling water	2.9	2.7	N/A at Byron

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	the CRDS controls:				
A1.11	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls:	Required primary system subcooling during shutdown; location of indication	3.7	3.9	N/A at Byron
A1.13	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls:	"Prepower dependent insertion limit" and power dependent insertion, determined with metroscope	4.0	4.2	N/A at Byron
A2.04	Ability to (a) predict the impacts of the following malfunction or operations and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Position of axial shaping rods and their effect on SDM	3.2	3.8	N/A at Byron
A2.08	Ability to (a) predict the impacts of the following malfunction or operations and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of CCW to CRDS	2.9	3.3	N/A at Byron
A2.20	Ability to (a) predict the impacts of the following malfunction or operations and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Isolation of left coil on affected rod to prevent coil burnout	2.6	3.6	N/A at Byron
A4.01	Ability to manually operate and/or monitor in the control room:	Controls for CCWS	3.1	2.9	N/A at Byron
A4.04	Ability to manually operate and/or monitor in the control room:	Part-length rod position	3.9	3.6	N/A at Byron
A4.07	Ability to manually operate and/or monitor in the control room:	Power source transfer check	3.3	3.3	N/A at Byron
A4.09	Ability to manually operate and/or monitor in the control room:	CCWS	2.8	3.1	N/A at Byron
A4.12	Ability to manually operate and/or monitor in the control room:	Stopping T/G load changes; only make minor adjustments to prevent coil burnout	2.9	2.9	N/A at Byron
A4.13	Ability to manually operate and/or monitor in the control room:	Stopping other changes in plant, e.g., turbine, S/G, SDBCS, boration, before adjusting rods	2.7	2.9	N/A at Byron
A4.14	Ability to manually operate and/or monitor in the control room:	Resetting rod control logic while recovering from misaligned rod, using instrument Tech Specs	3.0	3.4	N/A at Byron
A4.15	Ability to manually operate and/or monitor in the control room:	Stopping boration/dilution or other means of reacitivity change while adjusting either rod position or T-ave.	3.1	3.1	N/A at Byron
K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems:	CCW	3.0	3.2	N/A at Byron
K1.09	Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems:	CCWS must be cut in before energizing CRDS	2.8	3.1	N/A at Byron
K4.04	Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following:	Circuitry and principle of operation for LVDT or reed switch	2.5	2.8	N/A at Byron
K5.11	Knowledge of the following operational implications as they apply to the CRDS:	Relationship between reactivity worth of power-shaping control rod group and other control rod groups (power-shaping, or part-length, rods have much less reactivity than full-length control	3.1	3.6	N/A at Byron
K5.12	Knowledge of the following operational implications as they apply to the CRDS:	Effects on power of inserting axial shaping rods	3.4	4.1	N/A at Byron
K5.71	Knowledge of the following operational implications as they apply to the CRDS:	Reason for maintaining cross-tie breaker between rod drive M/G sets; reliability of control rod drive trip breakers during operation of one M/G set	2.4	2.9	N/A at Byron

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K5.76	Knowledge of the following operational implications as they apply to the CRDS:	Effects on power of inserting axial shaping rods	3.3	3.7	N/A at Byron
K5.79	Knowledge of the following operational implications as they apply to the CRDS:	Effects of positioning of axial shape rods on SDM	3.0	3.6	N/A at Byron
K6.09	Knowledge of the effect of a loss or malfunction on the following CRDS components:	Purpose and operation of neutron flux recorder at high speed concentration	2.9	2.9	N/A at Byron
002000	*Reactor Coolant System (RCS)*				
A3.02	Ability to monitor automatic operation of the RCS, including:	Containment sound-monitoring system	2.6	2.8	N/A at Byron
A4.04	Ability to manually operate and/or monitor in the control room:	The filling of LPI pumps during refueling	2.8	2.6	N/A at Byron
A4.05	Ability to manually operate and/or monitor in the control room:	The HPI system when it is used to refill the refueling cavity	2.8	2.7	N/A at Byron
K5.16	Knowledge of the operational implications of the following concepts as they apply to the RCS:	Reason for automatic features of the Feedwater control system during total loss of reactor coolant flow	3.5	4.0	N/A at Byron
003000	*Reactor Coolant Pump System (RCPS)*				
K3.05	Knowledge of the effect that a loss or malfunction of the RCPS will have on the following:	ICS	3.6	3.7	N/A at Byron
004000	*Chemical and Volume Control System (CVCS)*				
A2.08	Ability to (a) predict the impacts of the following malfunction or operations on the CVCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of heat tracing	3.0	3.7	N/A at Byron
A2.24	Ability to (a) predict the impacts of the following malfunction or operations on the CVCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Isolation of both letdown filters at one time: downstream relief lifts	2.8	2.8	N/A at Byron
A2.33	Ability to (a) predict the impacts of the following malfunction or operations on the CVCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Fact that isolating cation demineralizer stops boron dilution and enables restoration of normal boron concentration	2.7	3.3	N/A at Byron
A4.20	Ability to manually operate and/or monitor in the control room:	Deborating demineralizer selector valve and selector valve control switch	2.6	2.5	N/A at Byron
A4.22	Ability to manually operate and/or monitor in the control room:	Boronometer chart recorder	2.5	2.5	N/A at Byron
K1.09	Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems:	Relationship between CVCS and RPIS	2.2	2.7	N/A at Byron
K1.25	Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems:	Interface between HPI flow path and excess letdown flow path	2.7	3.2	N/A at Byron
K5.31	Knowledge of the operational implications of the following concepts as they apply to the CVCS:	Purpose of flowpath around boric acid storage tank	3.0	3.4	N/A at Byron
K5.32	Knowledge of the operational implications of the following concepts as they apply to the CVCS:	Purpose and control of heat tracing (prevent crystallization)	3.1	3.3	N/A at Byron
K5.33	Knowledge of the operational implications of the following concepts as they apply to the CVCS:	Use of a boronometer	2.3	2.6	N/A at Byron

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K6.11	Knowledge of the effect of a loss or malfunction on the following CVCS components:	Recirculation valve on boric acid storage tank (why it is closed during functional test)	2.4	2.7	N/A at Byron
K6.12	Knowledge of the effect of a loss or malfunction on the following CVCS components:	Principle of recirculation valve: (permit emergency flow even if valve is blocked by crystallized boric acid)	3.1	3.4	N/A at Byron
005000	*Residual Heat Removal System (RHRS)*				
K4.12	Knowledge of RHRS design feature(s) and / or interlock(s) which provide for the following:	Lineup for piggyback mode with CSS	3.1	3.7	N/A at Byron
006000	*Emergency Core Cooling System (ECCS)*				
A2.07	Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of heat tracing	2.8	3.1	N/A at Byron
A2.09	Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Radioactive release from venting RWST to atmosphere	2.6	3.2	N/A at Byron
A4.03	Ability to manually operate and/or monitor in the control room:	Transfer from boron storage tank to boron injection tank	3.5	3.5	N/A at Byron
K1.07	Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems:	MFW System	2.9	3.3	N/A at Byron
K1.10	Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems:	Safety injection tank heating system	2.6	2.8	N/A at Byron
K2.03	Knowledge of bus power supplies to the	Heat tracing	2.3	2.5	N/A at Byron
K4.19	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following:	Interlocks to storage tank makeup valve	3.0	3.1	N/A at Byron
K4.20	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following:	Automatic closure of common drain line and fill valves to accumulator	3.2	3.5	N/A at Byron
K4.29	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following:	BIT recirculation	2.5	2.9	N/A at Byron
007000	*Pressurizer Relief Tank/Quench Tank System (PRTS)*				
A4.04	Ability to manually operate and/or monitor in the control room:	PZR vent valve	2.6	2.6	N/A at Byron
K5.02	Knowledge of the operation implications of the following concepts as they apply to PRTS:	Method of forming a steam bubble in the PZR	3.1	3.4	N/A at Byron
008000	*Component Cooling Water System (CCWS)*				
A4.11	Ability to manually operate and/or monitor in the control room:	CCW pump recirculation valve and its three-way control switch	3.0	2.9	N/A at Byron
K3.02	Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:	CRDS	2.9	3.1	N/A at Byron

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010000	*Pressurizer Pressure Control System (PZR PCS)*				N/A at Byron
K4.02	Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following:	Prevention of uncovering PZR heaters	3.0	3.4	prevention of uncovering pressurizer heaters is covered by level control circuitry and is addressed by K/A011000K4.01
011000	*Pressurizer Level Control System (PZR LCS)*				
A2.08	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of level compensation	2.6	2.8	N/A at Byron
K1.05	Knowledge of the physical connections and/or cause-effect relationships between the PZR LCS and the following systems:	Reactor regulating system	3.4	3.5	N/A at Byron
K4.03	Knowledge of PZR LCS design feature(s) and/or interlock(s) which provide for the following:	Density compensation of PZR level	2.6	2.9	N/A at Byron
K6.01	Knowledge of the effect of a loss or malfunction on the following will have on the PZR LCS:	Reasons for starting charging pump while increasing letdown flow rate	2.8	3.2	N/A at Byron
012000	*Reactor Protection System*				
K6.07	Knowledge of the applicable performance and design attributes of the following RPS components:	Core protection calculator	2.9	3.2	N/A at Byron
K6.08	Knowledge of the applicable performance and design attributes of the following RPS components:	COLSS	3.6	3.7	N/A at Byron
K6.09	Knowledge of the applicable performance and design attributes of the following RPS components:	CEAC	3.6	3.7	N/A at Byron
013000	*Engineered Safety Features Actuation System (ESFAS)*				
A1.03	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including:	Feedwater header differential	2.6	2.6	N/A at Byron
K4.05	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Core spray actuation signal reset	4.0	4.2	N/A at Byron
K4.14	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Upper head injection accumulator isolation	3.7	4.0	N/A at Byron
K4.21	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Reason for starting an additional service water booster pump for train not being tested and stopping the pump on train under test	3.1	3.3	N/A at Byron
K4.24	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Reason for disabling of BIT so it will not function during ESF sequencer test	3.0	3.1	N/A at Byron

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014000	*Rod Position Indication System (RPIS)*				
A1.01	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls including:	Metroscope reed switch display	2.9	3.1	N/A at Byron
A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of LVDT	2.6	3.0	N/A at Byron
A2.07	Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of reed switch	2.6	2.9	N/A at Byron
A4.03	Ability to manually operate and/or monitor in the control room:	Primary coil voltage measurement	2.6	2.7	N/A at Byron
K4.01	Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following:	Upper electrical limit	2.5	2.7	N/A at Byron
K4.02	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Lower electrical limit	2.5	2.7	N/A at Byron
K4.04	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Zone reference lights	2.6	2.9	N/A at Byron
K4.05	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following:	Rod hold interlocks	3.1	3.3	N/A at Byron
K6.03	Knowledge of the applicable performance and design attributes of the following RPIS components:	Metroscope	2.1	2.6	N/A at Byron
015000	*Nuclear Instrumentation System*				
K1.05	Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems:	ICS	3.9	3.9	N/A at Byron
K1.06	Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems:	Reactor regulating system	3.1	3.4	N/A at Byron
K3.04	Knowledge of the effect that a loss or malfunction of the NIS will have on the following:	ICS	3.4	4.0	N/A at Byron
K3.06	Knowledge of the effect that a loss or malfunction of the NIS will have on the following:	Reactor regulating system	2.9	3.2	N/A at Byron
K4.01	Knowledge of NIS design feature(s) and/or interlock(s) which provide for the following:	Source-range detector shutoff at high powers	3.1	3.3	N/A at Byron
K4.04	Knowledge of NIS design feature(s) and/or interlock(s) which provide for the following:	Slow response time of SPNDs	3.4	3.6	N/A at Byron
K6.02	Knowledge of the effect of a loss or malfunction on the following will have on the NIS:	Discriminator/compensation circuits	2.6	2.9	N/A at Byron

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022000	*Containment Cooling System (CCS)*				
K1.02	Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems:	SEC/remote monitoring systems	3.7	3.5	N/A at Byron
K4.04	Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following:	Cooling of control rod drive motors	2.8	3.1	N/A at Byron
K4.05	Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following:	Containment cooling after LOCA destroys ventilation ducts	2.6	2.7	N/A at Byron
025000	*Ice Condenser System*				
A1.01	Ability to predict and/or monitor changes in parameters associated with operating the Ice Condenser System controls including	Temperature chart recorders	3.0	3.0	Byron does not have Ice Condensers
A1.02	Ability to predict and/or monitor changes in parameters associated with operating the Ice Condenser System controls including	Glycol expansion tank level	2.5	2.2	Byron does not have Ice Condensers
A1.03	Ability to predict and/or monitor changes in parameters associated with operating the Ice Condenser System controls including	Glycol flow to ice condenser air handling units	2.5	2.5	Byron does not have Ice Condensers
A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Trip of glycol circulation pumps	2.2	2.7	Byron does not have Ice Condensers
A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	High/low floor cooling temperature	2.7	2.5	Byron does not have Ice Condensers
A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Opening of ice condenser doors	3.0	3.2	Byron does not have Ice Condensers
A2.04	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Containment isolation	3.0	3.2	Byron does not have Ice Condensers
A2.05	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Abnormal glycol expansion tank level	2.5	2.7	Byron does not have Ice Condensers
A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the Ice Condenser System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Decreasing ice condenser temperature	2.5	2.7	Byron does not have Ice Condensers

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A3.01	Ability to monitor automatic operation of the Ice Condenser System, including:	Refrigerant system	3.0	3.0	Byron does not have Ice Condensers
A3.02	Ability to monitor automatic operation of the Ice Condenser System, including:	Isolation valves	3.4	3.4	Byron does not have Ice Condensers
A4.01	Ability to manually operate and/or monitor in the control room:	Ice condenser isolation valves	3.0	2.7	Byron does not have Ice Condensers
A4.02	Ability to manually operate and/or monitor in the control room:	Containment vent fans	2.7	2.5	Byron does not have Ice Condensers
A4.03	Ability to manually operate and/or monitor in the control room:	Glycol circulation pumps	2.2	2.2	Byron does not have Ice Condensers
K1.01	Knowledge of the physical connections and/or cause-effect relationships between the Ice Condenser System and the following systems:	Containment ventilation	2.7	2.7	Byron does not have Ice Condensers
K1.02	Knowledge of the physical connections and/or cause-effect relationships between the Ice Condenser System and the following systems:	Refrigerant systems	2.7	2.7	Byron does not have Ice Condensers
K1.03	Knowledge of the physical connections and/or cause-effect relationships between the Ice Condenser System and the following systems:	Containment sump system	3.2	3.0	Byron does not have Ice Condensers
K2.01	Knowledge of bus power supplies to the	Containment ventilation fans and dampers	2.2	2.7	Byron does not have Ice Condensers
K2.02	Knowledge of bus power supplies to the	Refrigerant systems	2.0	2.5	Byron does not have Ice Condensers
K2.03	Knowledge of bus power supplies to the	Isolation valves	2.0	2.2	Byron does not have Ice Condensers
K3.01	Knowledge of the effect that a loss or malfunction of the Ice Condenser System will have on the following:	Containment	3.8	3.8	Byron does not have Ice Condensers
K4.01	Knowledge of Ice Condenser System design feature(s) and/or interlock(s) which provide for the following:	Glycol expansion tank levels and ice condenser system containment isolation valves	2.2	2.5	Byron does not have Ice Condensers
K4.02	Knowledge of Ice Condenser System design feature(s) and/or interlock(s) which provide for the following:	System control	2.8	3.0	Byron does not have Ice Condensers
K5.01	Knowledge of operational implications of the following concepts as they apply to the Ice Condenser System:	Relationships between pressure and temperature	3.0	3.4	Byron does not have Ice Condensers
K5.02	Knowledge of operational implications of the following concepts as they apply to the Ice Condenser System:	Heat transfer	2.6	2.8	Byron does not have Ice Condensers

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K5.03	Knowledge of operational implications of the following concepts as they apply to the Ice Condenser System:	Gas laws	2.4	2.8	Byron does not have Ice Condensers
K6.01	Knowledge of the effect of a loss or malfunction of the following will have on the ice condenser system:	Upper and lower doors of the ice condenser	3.4	3.6	Byron does not have Ice Condensers
026000	*Containment Spray System (CSS)*				
A2.09	Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Radiation hazard potential of BWST	2.6	2.9	N/A at Byron
K1.02	Knowledge of the physical connections and/or cause-effect relationships between the CSS and the following systems:	Cooling water	4.1	4.1	Containment Spray pumps have no cooling water at Byron
K3.02	Knowledge of the effect that a loss or malfunction of the CSS will have on the following:	Recirculation spray system	3.9	4.1	N/A at Byron
028000	*Hydrogen Recombiner and Purge Control System (HRPS)*				
A1.01	Ability to predict and/or monitor changes in parameter (to prevent exceeding design limits) associated with operating the HRPS controls including:	Hydrogen concentration	3.4	3.8	Hydrogen Recombiners no longer in use
A1.02	Ability to predict and/or monitor changes in parameter (to prevent exceeding design limits) associated with operating the HRPS controls including:	Containment pressure	3.4	3.7	Hydrogen Recombiners no longer in use
A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the HRPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Hydrogen recombiner power setting, determined by using plant data book	3.4	3.6	Hydrogen Recombiners no longer in use
A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the HRPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	LOCA condition and related concern over hydrogen	3.5	3.9	Hydrogen Recombiners no longer in use
A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the HRPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	The hydrogen air concentration in excess of limit flame propagation or detonation with resulting equipment damage in containment	3.4	3.6	Hydrogen Recombiners no longer in use
A4.01	Ability to manually operate and/or monitor in the control room:	HRPS controls	4.0	4.0	Hydrogen Recombiners no longer in use
K1.01	Knowledge of the physical connections and/or cause effect relationships between the HRPS and the following systems:	Containment annulus ventilation system (including pressure limits)	2.5	2.5	Hydrogen Recombiners no longer in use

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K1.02	Knowledge of the physical connections and/or cause effect relationships between the HRPS and the following systems:	Air supply system	2.0	2.2	Hydrogen Recombiners no longer in use
K2.01	Knowledge of the power supplies to the following	Hydrogen Recombiners	2.5	2.8	Hydrogen Recombiners no longer in use
K3.01	Knowledge of the effect that a loss or malfunction of the HRPS will have on the following:	Hydrogen concentration in containment	3.3	4.0	Hydrogen Recombiners no longer in use
K5.01	Knowledge of the operational implications of the following concepts as they apply to the HRPS:	Explosive hydrogen concentration	3.4	3.9	Hydrogen Recombiners no longer in use
K5.02	Knowledge of the operational implications of the following concepts as they apply to the HRPS:	Flammable hydrogen concentration	3.4	3.9	Hydrogen Recombiners no longer in use
K5.03	Knowledge of the operational implications of the following concepts as they apply to the HRPS:	Sources of hydrogen within containment	2.9	3.6	Hydrogen Recombiners no longer in use
K5.04	Knowledge of the operational implications of the following concepts as they apply to the HRPS:	The selective removal of hydrogen	2.6	3.2	Hydrogen Recombiners no longer in use
K6.01	Knowledge of the effect that a loss or malfunction on the following will have on the HRPS	Hydrogen Recombiners	2.6	3.1	Hydrogen Recombiners no longer in use
033000	*Spent Fuel Pool Cooling System (SFPCS)*				
A4.02	Ability to manually operate and / or monitor in the control room:	SFPCS valves	2.4	2.8	N/A at Byron
035000	*Steam Generator System (S/GS)*				
K4.04	Knowledge of S/GS design feature(s) and/or interlock(s) which provide for the following:	Radiation high-level isolation while draining S/G secondary to main condenser	2.8	3.1	N/A at Byron
039000	*Main and Reheat Steam System (MRSS)*				
A4.04	Ability to manually operate and/or monitor in the control room:	Emergency feedwater pump turbines	3.8	3.9	N/A at Byron
K1.07	Knowledge of the physical connections and / or cause-effect relationships between the MRSS and the following systems	AFW	3.4	3.4	Byron does not have turbine driven AFW pumps.
K3.03	Knowledge of the effect that a loss of the MRSS will have on the following:	AFW pumps	3.2	3.5	Byron does not have turbine driven AFW pumps.
K4.07	Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following:	Reactor building isolation	3.4	3.7	N/A at Byron
041000	*Steam Dump System (SDS) and Turbine Bypass Control*				
A4.01	Ability to manually operate and/or monitor in the control room:	ICS voltage inverter	2.9	3.1	N/A at Byron
A4.07	Ability to manually operate and/or monitor in the control room:	Remote gagging of stuck open relief valves	2.9	3.0	N/A at Byron
K2.01	Knowledge of bus power supplies to the following:	ICS, normal and alternate power supply	2.5	2.6	N/A at Byron

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K2.02	Knowledge of bus power supplies to the following:	ICS inverter breakers	2.8	2.9	N/A at Byron
K4.01	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following:	RRG/ICS systems	2.8	2.8	N/A at Byron
K4.15	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following:	"Measured variable" readings on ICS hand-automatic stations and required action if reading is out of acceptable band	2.9	2.9	N/A at Byron
045000	*Main Turbine Generator (MT/G) System*				
K4.08	Knowledge of MT/G System design feature(s) and/or interlock(s) which provide for the following:	The reactor bailey station and reactor diamond station in integrated control circuitry	2.6	3.0	N/A at Byron
K4.44	Knowledge of MT/G System design feature(s) and/or interlock(s) which provide for the following:	Impulse pressure mode control of steam dumps	2.5	2.8	N/A at Byron
055000	*Condenser Air Removal System (CARS)*				
A3.03	Ability to monitor automatic operation of the CARS, including:	Automatic diversion of CARS exhaust	2.5	2.7	N/A at Byron
059000	*Main Feedwater (MFW) System*				
A1.07	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW controls including:	Feed pump speed, including normal control speed for ICS	2.5	2.6	N/A at Byron
A3.07	Ability to monitor automatic operation of the MFW System, including:	ICS	3.4	3.5	N/A at Byron
A4.10	Ability to manually operate and/or monitor in the control room:	ICS	3.9	3.8	N/A at Byron
K1.07	Knowledge of the physical connections and/or cause-effect relationships between the MFW System and the following systems:	ICS	3.2	3.2	N/A at Byron
K4.02	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following:	Automatic turbine/reactor trip runback	3.3	3.5	N/A at Byron
K4.17	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following:	Increased feedwater flow following a reactor trip	2.5	2.8	N/A at Byron
061000	*Auxiliary / Emergency Feedwater (AFW) System*				
A1.03	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including:	Interactions when multi unit systems are cross tied	3.1	3.6	N/A at Byron
A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the AFW System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations	**A2.01 Startup of MFW pump during AFW operation Added to list during development of 2012 NRC Exam**	2.5	2.6	N/A at Byron
A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the AFW System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of air to steam supply valve	3.2	3.6	N/A at Byron

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A3.04	Ability to monitor automatic operation of the AFW System, including:	Automatic AFW isolation	4.1	4.2	N/A at Byron
K1.09	Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems:	PRMS	2.6	2.8	N/A at Byron
K1.11	Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems:	AFW turbine exhaust drains	2.7	2.8	N/A at Byron
K4.07	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following:	Turbine trip, including overspeed	3.1	3.3	N/A at Byron
K4.11	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following:	Automatic level control	2.7	2.9	N/A at Byron
K4.14	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following:	AFW automatic isolation	3.5	3.7	N/A at Byron
K5.04	Knowledge of the following theoretical concepts as they apply to the AFW System:	Reason for warming up turbine prior to turbine startup	2.3	2.5	N/A at Byron
068000	*Liquid Radwaste System (LRS)*				
A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Insufficient sampling frequency of the boric acid in the evaporator bottoms.	2.5	2.4	N/A at Byron
A3.01	Ability to monitor automatic operation of the AFW System, including:	Evaporator pressure control	2.7	2.4	N/A at Byron
A4.01	Ability to manually operate and/or monitor in the control room:	Control board for boron recovery	2.7	2.4	N/A at Byron
071000	*Waste Gas Disposal System (WGDS)*				
A4.05	Ability to manually operate and/or monitor in the control room:	Gas decay tanks, including valves, indicators, sample line	2.6	2.6	Byron control room does not contain equipment or instrumentation to monitor or perform gas decay tank operations.
A4.10	Ability to manually operate and/or monitor in the control room:	WGDS sampling	2.5	2.4	N/A at Byron
A4.11	Ability to manually operate and/or monitor in the control room:	WGDS startup and shutdown	2.5	2.3	N/A at Byron
A4.13	Ability to manually operate and/or monitor in the control room:	Recovery from automatic termination of gas release	3.0	3.1	N/A at Byron
A4.14	Ability to manually operate and/or monitor in the control room:	WGDS status alarms	2.8	3.0	N/A at Byron
A4.16	Ability to manually operate and/or monitor in the control room:	Waste gas decay tank shifts	2.5	2.2	N/A at Byron
A4.17	Ability to manually operate and/or monitor in the control room:	Stopping transfer of radioactive liquids to WGDS tank	2.6	2.5	N/A at Byron
A4.27	Ability to manually operate and/or monitor in the control room:	Opening and closing of the decay tank discharge	3.0	2.7	N/A at Byron

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A4.30	Ability to manually operate and/or monitor in the control room:	Water drainage from the WGDS decay tanks	2.9	2.6	N/A at Byron
K4.03	Knowledge of design feature(s) and/or interlock(s) which provide for the following:	Tank loop seals	2.5	2.6	N/A at Byron
073000	*Process Radiation Monitoring (PRM) System*				
K4.02	Knowledge of PRM System design feature(s) and/or interlock(s) which provide for the following:	Letdown isolation on high-RCS activity	3.3	3.9	N/A at Byron
076000	*Service Water System (SWS)*				
A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including:	Reactor and turbine building closed cooling water temperatures	2.5	2.3	N/A at Byron
K1.07	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:	Secondary closed cooling water	2.6	2.6	N/A at Byron
K1.08	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:	RHR system	3.5	3.5	N/A at Byron
K1.09	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:	Reactor building closed cooling water	3.0	3.1	N/A at Byron
K1.17	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:	PRMS	3.6	2.7	N/A at Byron
K1.21	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:	Auxiliary backup SWS	2.7	2.9	N/A at Byron
K2.04	Knowledge of bus power supplies to the	Reactor building closed cooling water	2.5	2.6	N/A at Byron
K3.03	Knowledge of the effect that a loss of the SWS will have on the following:	Reactor building closed cooling water	3.5	3.9	N/A at Byron
K3.08	Knowledge of the effect that a loss of the SWS will have on the following:	Radioactive liquid waste discharges	2.3	2.9	N/A at Byron
K4.01	Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following:	Conditions initiating automatic closure of closed cooling water auxiliary building header supply and return valves	2.5	2.9	N/A at Byron
K4.03	Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following:	Automatic opening features associated with SES isolation valves to CCW heat exchangers	2.9	3.4	N/A at Byron
078000	*Instrument Air System (IAS)*				
K1.04	Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems:	Cooling water to compressor	2.6	2.9	N/A at Byron
K1.05	Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems:	MSIV air	3.4	3.5	N/A at Byron
K2.02	Knowledge of bus power supplies to the:	Emergency air compressor	3.3	3.5	N/A at Byron
K4.02	Knowledge of IAS design feature(s) and/or interlock(s) which provide for the following:	Cross-over to other air systems	3.2	3.5	N/A at Byron Does not operate like the K/A statement implies. SA supplies IA via IA dryers, no other air connections.

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K4.03	Knowledge of IAS design feature(s) and / or interlock(s) which provide for the following:	Securing of SAS upon loss of cooling water	3.1	3.3	N/A at Byron
086000	*Fire Protection System (FPS)*				
A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the FPS controls including:	Fire water storage tank level	3.0	3.2	N/A at Byron
A4.04	Ability to manually operate and/or monitor in the control room:	Fire water storage tank makeup pumps	3.4	3.3	N/A at Byron
K1.01	Knowledge of the physical connections and/or cause-effect relationships between the FPS and the following systems:	High-pressure service water	3.0	3.4	N/A at Byron
103000	*Containment System*				
A4.09	Ability to manually operate and/or monitor in the control room:	Containment vacuum system	3.1	3.7	N/A at Byron
K1.03	Knowledge of the physical connections and/or cause-effect relationships between the Containment System and the following systems:	Shield building vent system	3.1	3.5	N/A at Byron
K1.07	Knowledge of the physical connections and/or cause-effect relationships between the Containment System and the following systems:	Containment vacuum system	3.5	3.7	N/A at Byron
K4.01	Knowledge of Containment System design feature(s) and/or interlock(s) which provide for the following:	Vacuum breaker protection	3.0	3.7	N/A at Byron

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