RAI-1

Issue:

The Overall Integrated Plan (OIP) states that:

1. Level adequate to support operation of the normal fuel pool cooling system – Indicated level on either the primary or backup instrument channel of 24 feet 10.75 inches above the top of the fuel storage racks plus the accuracy of the Spent Fuel Pool (SFP) level instrument channel, which is to be determined. This aligns with the normal SFP level as shown in Callaway Final Safety Analysis Report (FSAR) Figure 1.2-21 (Reference 5) and provides adequate margin to maintain fuel pool cooling pump suction.

2. Level adequate to provide substantial radiation shielding for a person standing on the SFP operating deck – indicated level on either the primary or backup instrument channel of greater than 10 feet (+/- 1 foot) above the top of the fuel storage racks based on Reference 2 and Reference 3. This monitoring level ensures there is an adequate water level to provide substantial radiation shielding for a person standing on the SFP operating deck.

3. Level where fuel remains covered -Indicated level on either the primary or backup instrument channel of greater than 1 foot above the top of the fuel storage racks plus the accuracy of the SFP level instrument channel, which is to be determined. This monitoring level assures that there is adequate water level above the stored fuel seated in the rack.

Please describe how the elevations within the SFP identified by the licensee as Level 1, Level 2, and Level 3 comply with order EA-12-051 and NEI 12-02.

Please provide the following:

a) The specific functional reasons for identification of the elevations within the SFP as Levels 1, 2 and 3. For Level 1, specify how the identified location represents the HIGHER of the two points described in the NEI 12-02 guidance for this level.

b) A clearly labeled sketch depicting the elevation view of the proposed typical mounting arrangement for the portions of instrument channel consisting of permanent measurement channel equipment (e.g., fixed level probes and/or stilling wells, and mounting brackets). Please indicate on this sketch the data values representing Level 1, Level 2, and Level 3, as well as the top of the fuel. The sketch should indicate the portion of the level sensor measurement range that is sensitive to measurement of the fuel pool level, with respect to the Level 1, Level 2, and Level 3 data points.

Callaway Response:

a) The NEI 12-02 guidance specified the higher of the two levels because either condition would compromise continued operation of the normal fuel pool cooling system, and the one reached first on a declining water level depends on plant-specific piping configurations and pump characteristics.

   Level 1
   Callaway designated Level 1 to be EL. 2046 feet (24 feet, 10.75 inches above the top of the fuel racks). This corresponds to the normal water level. This level is adequate to support operation of the normal fuel pool cooling system, as required by Order EA-12-051. It is a higher level than either of the pump-

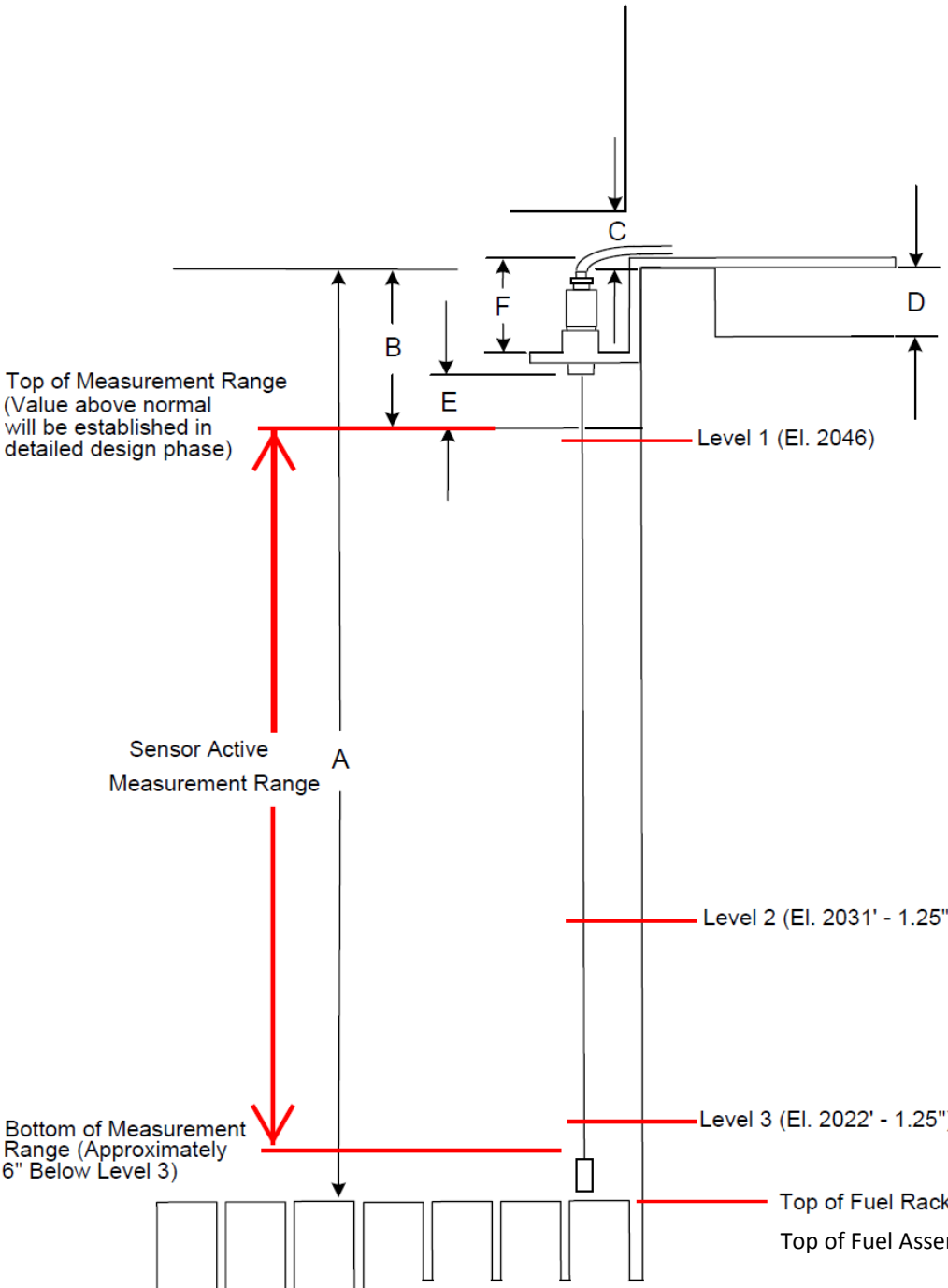
limiting conditions specified in NEI 12-02, and as such, is conservatively safe. The normal water level is also above the level at which the cooling pumps trip on low level. Pump trip will occur before either of the pump-limiting levels defined in NEI 12-02 are reached.

In selecting normal water level as Level 1, the need to define a specific operational action to be taken in response to reaching Level 1 is precluded.

Level 2
Callaway designated Level 2 to be the water level 10 feet (± 1.0 foot) above the top of the fuel racks. This conforms to one of the two bases for designation specified in NEI 12-02. While following the guidance for the calculation-based method for determining a value for Level 2 could have resulted in a lower Callaway-specific level, there would have been no functional or safety advantage to do so.

Level 3
Callaway designated Level 3 to be the water level "greater than 1 foot above the top of the fuel storage racks plus the accuracy of the SFP level instrument channel, which is to be determined." This is consistent with the "nominal" "highest point of any fuel rack..." characterization of NEI 12-02. Designation of this level as Level 3 is conservative; its selection assures that the fuel will remain covered, and at that point there would be no functional or operational reason to defer action to implement the addition of make-up water to the pool.

b) See sketch below:



Dimension	Description	Responsibility
A	Curb to Top of Rack [First Obstruction]	Utility / AE
B	Curb to Maximum Water Level	Utility / AE
C	Clearance Curb to FHM Bridge	Utility / AE
D	Curb Height above Operating Deck	Utility / AE
E	Coupler Face to Water (Minimum)	Sensor Manufacturer
F	Bracket Offset	Bracket Designer

RAI-2

Issue:

The OIP states, in part, that:

> There are also two mounted panels, providing sensor and display interfaces and wireless transmission and reception capabilities.

Please provide a plant-specific evaluation of the proposed wireless technology that will be used in the primary and backup measurement systems to address the criteria summarized in Section 3.1 of NEI 12-02.

Callaway Response:

The wireless technology used for the primary and backup SFP level measurements uses the 900 MHz, Industry, Scientific and Medical (ISM) band, from 902 MHz to 928 MHz. The wireless system incorporates frequency hopping spread-spectrum (FHSS) techniques, with the pre-determined hopping pattern controlled by hardware "keys" plugged into the wireless transmitter and receiver modules. The wireless transmitter is limited to 1 watt of power, and antenna gain is 7dbi. Implementation of the wireless signal provides for up to 256-bit, advanced encryption standard (AES) encryption. An individual, single-frequency transmission can be dropped without disruption or loss of the measurement signal. FHSS technology facilitates system operation without interference with 900 MHz communication equipment or other plant systems. The FHSS technology allows for multiple wireless channels to be operating at the same time without interference. The wireless components will be located in the Auxiliary Building, and will be capable of operating in the environment during a beyond-design-basis event resulting from loss of SFP cooling. The wireless implementation meets the same requirements established for wired implementation in NEI 12-02. Battery capacity for each of the SFP level measurement channels is sufficient to provide continuous operation for 72 hours.

The SFP instrumentation system (SFPIS) is a stand-alone system with no connection into other parts of plant instrumentation and control systems. Failure of a wireless component will affect only the signal for which it is used. The SFPIS does not provide a path for entry of malicious code into any part of the plant I&C systems, and has no impact on plant cyber security controls.

RAI-3

Issue:

The OIP states that:

> The primary and backup instrument sensing components will be separated consistent with the guidelines of Reference 2 and Reference 3. Design of the mounting bracket will allow the fuel handling machine to pass over it without interference.

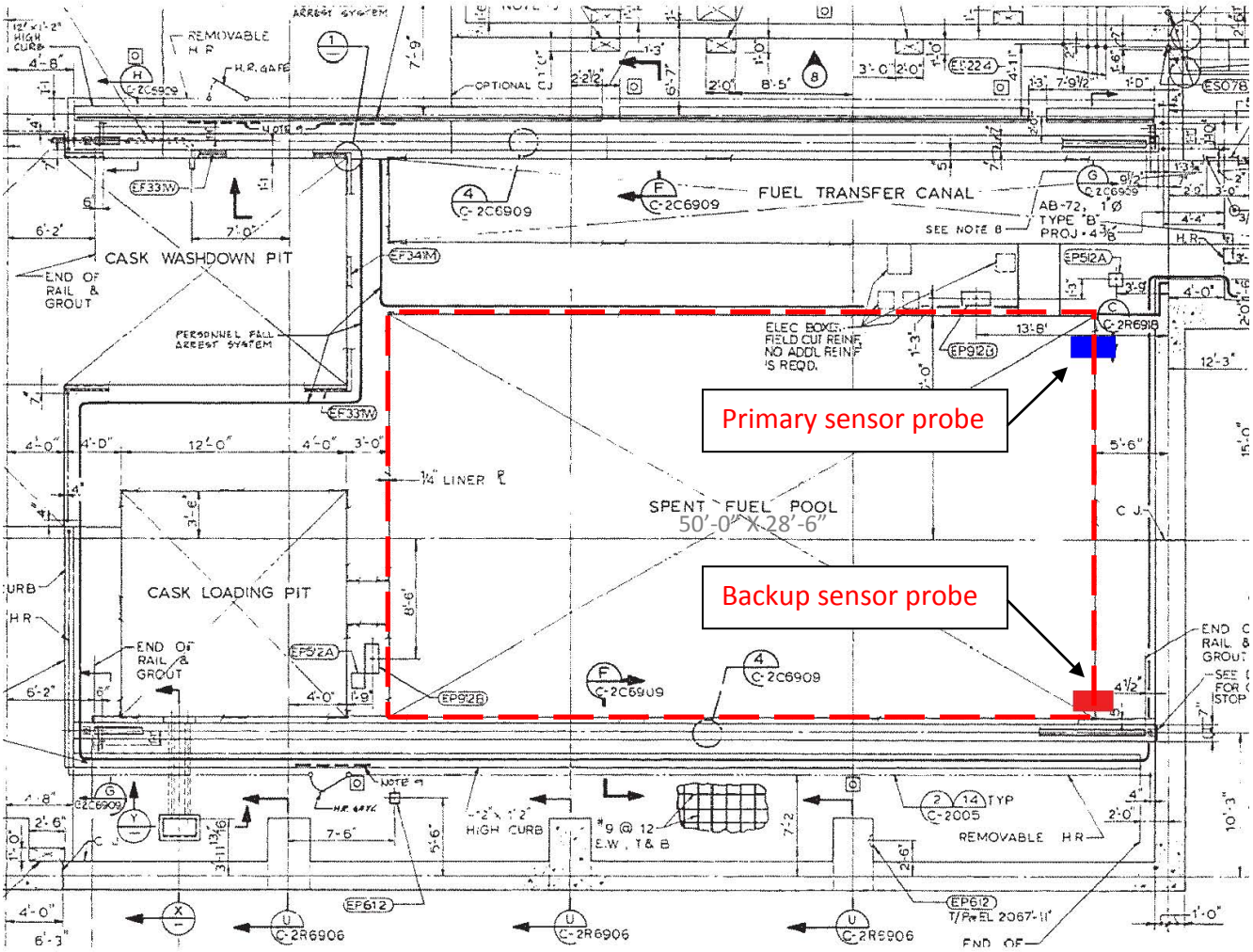
Please provide a clearly labeled sketch or marked-up plant drawing of the plan view of the SFP area, depicting the SFP inside dimensions, the planned locations/ placement of the primary and back-up SFP level sensor, and the proposed routing of the cables that will extend from the sensors toward the location of the read-out/display device. Also, please confirm that the proposed area(s) will be accessible when the SFP area is not accessible.

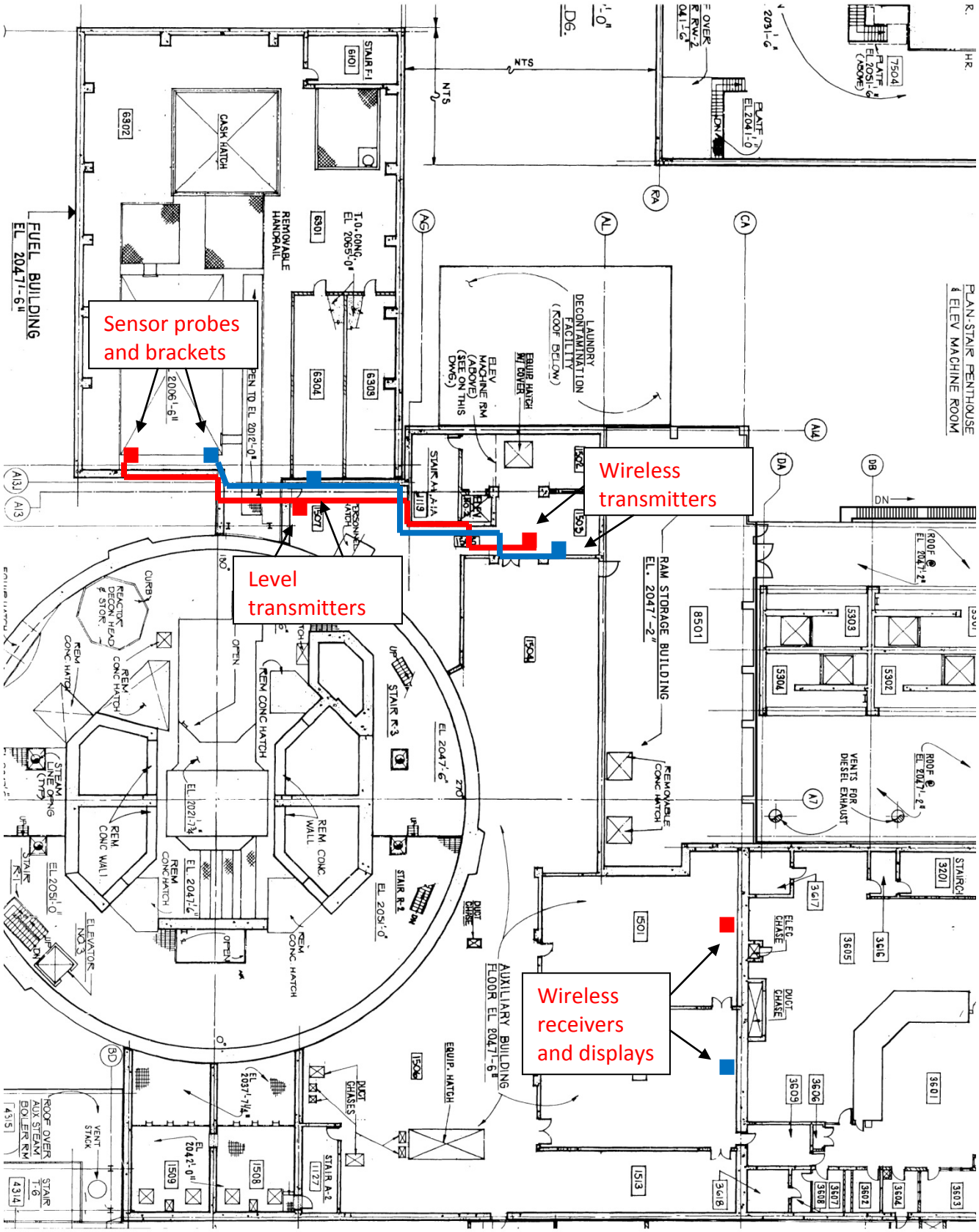
Callaway Response:

Below are excerpts from plant drawings being used as sketches that depict the conceptual locations of the two permanently mounted level probes (primary and backup) within the SFP area and the cable routing to locate the electronics to a non-harsh environment outside the SFP area.

The inside dimensions of the SFP are 50’-0” by 28’-6”.

The recognized displays will be located in the Control Room A/C Unit & Filtration Units Rooms “A” and “B” which are adjacent to the Control Room. These rooms are accessible during and after an event occurs.


FUEL TRANSFER CANAL
CASK WASHDOWN PIT
CASK LOADING PIT
SPENT FUEL POOL
50'-0" X 28'-6"
1/4" LINER
Primary sensor probe
Backup sensor probe
REMOVABLE H.R.
H.R. GATE
OPTIONAL C.J.
END OF RAIL & GROUT
PERSONNEL FALL ARREST SYSTEM
ELEC BOXES FIELD CUT REINF NO ADDL REINF IS REQD.
SEE NOTE 8
AB-72, 1Ø TYPE 'B' PROJ.
HIGH CURB
#9 @ 12 E.W., T & B
REMOVABLE H.R.
C-2C6909
C-2R6906
C-2R6918
C-2005


Sensor probes and brackets
Wireless transmitters
Level transmitters
Wireless receivers and displays
FUEL BUILDING EL 2047'-6"
PLAN-STAIR PENTHOUSE & ELEV MACHINE ROOM
RAM STORAGE BUILDING EL. 2047'-2"
AUXILIARY BUILDING FLOOR EL 2047'-6"
REMOVABLE HANDRAIL
CASK HATCH
LAUNDRY DECONTAMINATION FACILITY (ROOF BELOW)
ELEV MACHINE RM (ABOVE) (SEE ON THIS DWG.)
EQUIP HATCH W/ COVER
T.O. CONC. EL 2065'-0"
PEN TO EL 2012'-0"
REACTOR DECON HEAD STOR.
REM CONC HATCH
REM CONC WALL
STAIR R-3
STAIR R-2
STAIR R-1
EL 2047'-6"
EL 2021'-7¼"
EL 2037'-7¼"
EL 2044'-0"
EL 2051'-0"
ELEVATOR NO. 3
ELEC CHASE
DUCT CHASE
EQUIP. HATCH
REMOVABLE CONC HATCH
VENTS FOR DIESEL EXHAUST
ROOF EL 2047'-2"
ROOF OVER AUX STEAM BOILER RM
VENT STACK
STAIR T-6
STEAM LINE OPNG (TYP.)
CURB
OPEN
NTS
DN
UP

RAI-4

Issue:

The OIP states that:

> The mounting of both the primary and backup system will be installed to maintain its integrity during and following a design basis seismic event. All locations will be reviewed for two-over-one seismic interference.

Please provide the following:

a) The design criteria that will be used to estimate the total loading on the mounting device(s), including static weight and dynamic loads. Please describe the methodology that will be used to estimate the total loading, inclusive of design basis maximum seismic loads and the hydrodynamic loads that could result from pool sloshing or other effects that could accompany such seismic forces.

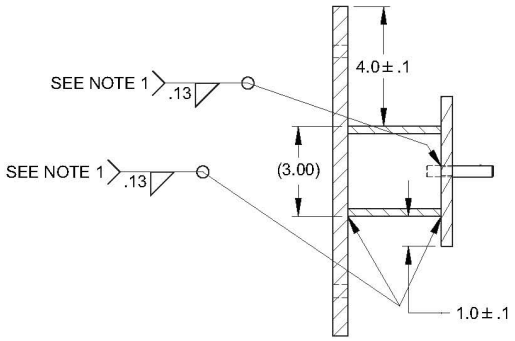
b) A description of the manner in which the level sensor (and stilling well, if appropriate) will be attached to the refueling floor and/or other support structures for each planned point of attachment of the probe assembly. Indicate in a schematic the portions of the level sensor that will serve as points of attachment for mechanical/mounting or electrical connections.

c) A description of the manner by which the mechanical connections will attach the level instrument to permanent SFP structures so as to support the level sensor assembly.

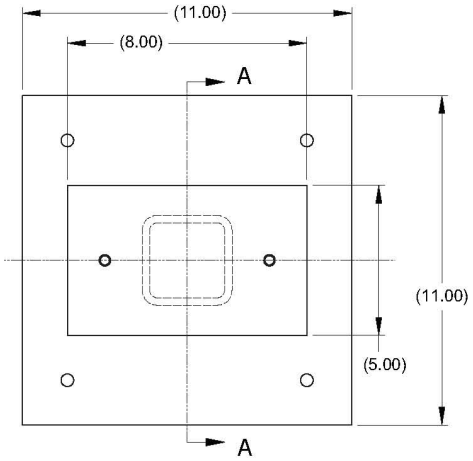
Callaway Response:

a) The mounting bracket for the sensing probe will be designed according to the plant design basis for the Safe Shutdown Earthquake (SSE) seismic hazard curve at the plant elevation of the refuel floor. Loads that will be considered in the evaluation of the bracket and its mounting are: 1) Static loads including the dead weight of the mounting bracket in addition to the weight of the level sensing instruments and cabling; 2) Dynamic loads including the seismic load due to excitation of the dead weight of the system in addition to the hydrodynamic effects (if credible, considering the geometry and the flexibility of the sensing probe and the water sloshing height) resulting from the excitation of the SFP water. A response spectra analysis will be performed for the seismic evaluation of the mounting bracket using Finite Element Analysis (FEA) software and using floor response spectrum at Elevation 2047' 6" in the Fuel Building (i.e. mounting floor elevation). Damping values will be according to the SSE and consistent with the design basis of the station. The material properties that will be used for the bracket and its mounting will take into consideration the environmental conditions in the SFP area following an SSE. Hydrodynamic effects on the mounting bracket will be evaluated using TID-7024 (Nuclear Reactors and Earthquakes, dated 1963). Plant acceptance criteria and applicable codes will be used for the design of the bracket and its anchorage.

b) The typical schematic below details the pedestal that will attach to the refueling floor. The pedestal will be attached to the refueling floor using installed anchors that will be designed according to the plant's existing specification for design of concrete anchors. The pedestal will be adjusted to the height of the poolside curb to ensure the SFP bracket extends over the pool horizontally level.



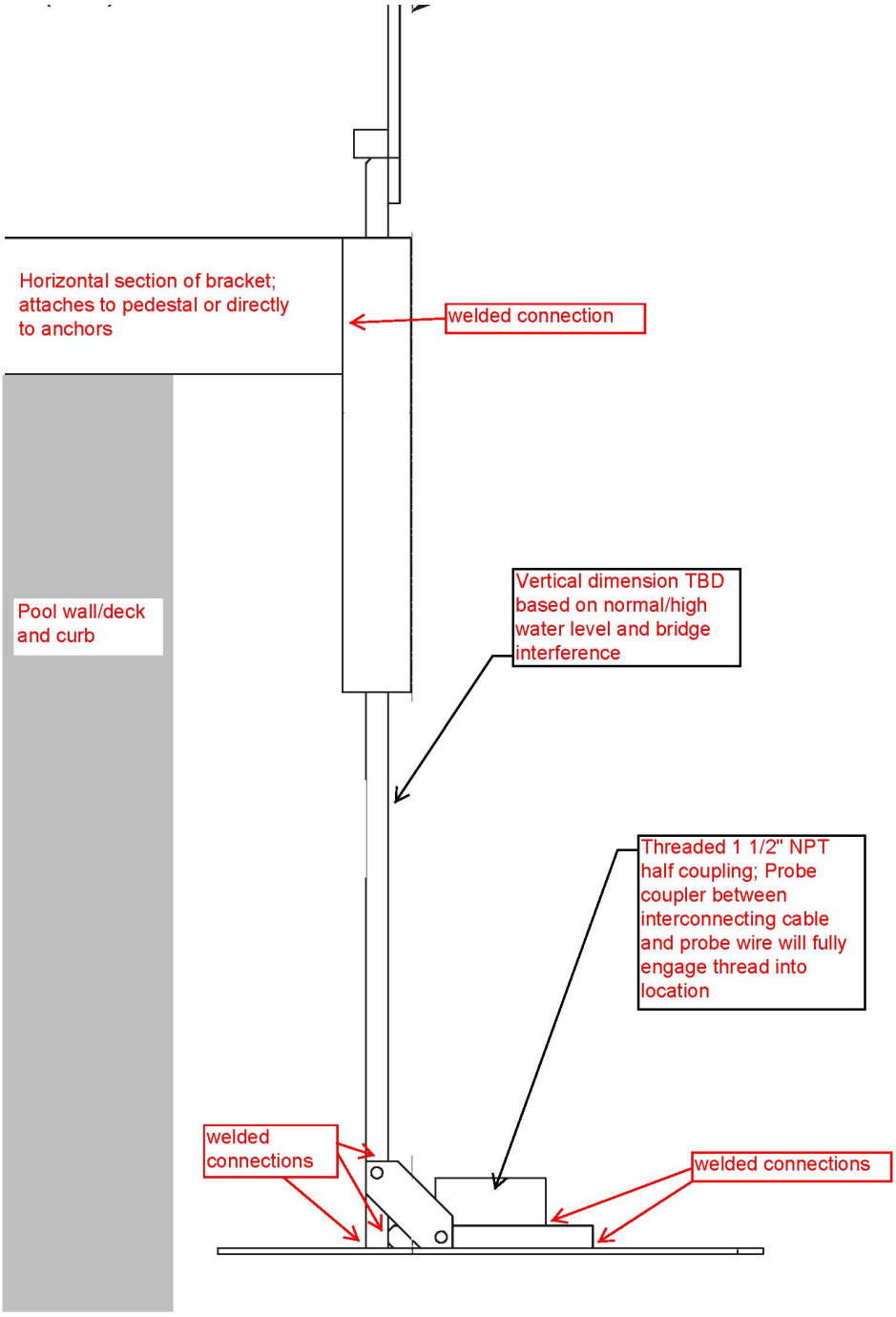
SECTION A-A



GENERAL NOTES:

1. SMAW, GTAW, OR GMAW ARE ALL ACCEPTABLE WELDING PROCESSES

The probe attaches to the bracket via a 1 ½ inch NPT threaded connection. The schematic below details the vertical portion of the bracket where the probe will thread into the bracket. All non-movable connections of parts will be welded during manufacturing. Dimensions are nominal and may be adjusted for seismic qualification and final delivery.



c) The attachment of the seismically qualified pedestal to the refueling floor will be through permanently installed anchors, with adequate washers and bolts, which will be designed according to the plant's existing specification for design of concrete anchors. The pedestal will attach to the horizontal section of the bracket with adequate bolts, washers and nuts. The horizontal section of the bracket will attach to the front-end vertical section through a welded connection and a seismically qualified slide. The sensor probe will thread into a 1 ½" NPT half coupling that is welded to the front-end vertical section.

RAI-5

Issue:

The OIP states that:

> Reliability of both instrument channels will be demonstrated via an appropriate combination of design, analyses, operating experience, and/or testing of channel components for the following sets of parameters:
>
> 1) conditions in the area of instrument channel component used for all instrument components,
>
> 2) effects of shock and vibration on instrument channel components used during and following any applicable event for installed components, and
>
> 3) seismic effects on instrument channel components used during and following a potential seismic event for only installed components.

Please provide the following:

a) A description of the specific method or combination of methods you intend to apply to demonstrate the reliability of the permanently installed equipment under beyond-design-basis ambient temperature, humidity, shock, vibration, and radiation conditions.

b) A description of the testing and/or analyses that will be conducted to provide assurance that the equipment will perform reliably under the worst-case credible design basis loading at the location where the equipment will be mounted. Include a discussion of this seismic reliability demonstration as it applies to a) the level sensor mounted in the SFP area, and b) any control boxes, electronics, or read-out and re-transmitting devices that will be employed to convey the level information from the level sensor to the plant operators or emergency responders.

Callaway Response:

a) Demonstration of the reliability of the permanently installed SFPIS equipment under the beyond-design-basis conditions will be by design, analysis, operating experience and testing by the system vendor and the equipment manufacturer(s), as described below for each of the identified conditions.

   Temperature and Humidity

   SFPIS materials and components were selected and specified by design to meet or exceed the temperature and humidity in the Fuel Building and other buildings during the extended loss of ac power (ELAP) event for the locations of sensor and system electronics. The design of system components will be validated by analytical methods or testing or both as shown below.

System Component	Basis for Demonstration
Sensor Probe	By design and analysis. Stainless steel cable probe is inherently tolerant of the effects of the specified temperature and humidity.
Sensor Bracket and Stilling Well	By design and analysis. Stainless steel bracket and stilling well are inherently tolerant of the effects of the specified temperature and humidity.
Sensor Coupler	By design and analysis. The coupler is primarily stainless steel, and is specifically designed by the manufacturer for high temperature and humidity applications.
Coaxial Cable	By design and testing. Selected by design for conditions; tested for performance at 212 ºF, saturated steam.
Sensor Electronics	By design. Sensor electronics design temperature exceeds requirements for the sensor electronics mounting locations. This component will be located in the Auxiliary Building.
System Electronics	By design and testing. Component design temperature exceeds requirements for equipment mounting locations; tested for performance under conditions of temperature and humidity cycling. This component will be located in the Auxiliary Building.
Wireless Receiver and Display	By design and testing. Component design temperature exceeds requirements for equipment mounting locations; tested for performance under conditions of temperature and humidity cycling. This component will be located in the Control Room A/C Unit & Filtration Units Room "A".

Shock and Vibration

All components located within the SFP are passive components, inherently resistant to shock and vibration loadings. These include the stainless steel sensor cable probe, sensor bracket, coupler and interconnecting cable.

Active electronic components, located outside the SFP building, are permanently and rigidly attached to seismic racks or structural walls, and are not subject to significant shock and vibration loadings. However, assurance of reliability under conditions of shock and vibration is supported by manufacturer operating experience, which includes use of components in high vibration installations, such as compressed air systems and transportation industries.

Radiation

Components subject to significant radiation under beyond design basis conditions are those in the Fuel Building. These include the probe, stilling well and bracket, which have no soft parts, the coupler and interconnecting cable. The sensor probe and bracket are stainless steel and will not be affected by the anticipated radiation. The coupler and cable are selected by design for the beyond design basis radiation service. Supplemental radiation testing of the interconnecting cable to the total integrated dose will be completed to demonstrate operation for more than one week with SFP water at Level 3, and indefinitely at Level 2 or above (refer to RAI 1) .

b) The probe, interconnecting cable, supporting bracket and stilling well are functionally passive components. Analysis will be used to demonstrate they will maintain their structural integrity and

design configuration and to establish their reliability. The coupler and interconnecting cable are also passive components; however, they will be included in the seismic testing of the sensor electronics. All active system components, including sensor electronics, wireless transmitter, system electronics, batteries, display and enclosures will be seismically tested based on rigid mounting conditions. Testing is tri-axial, using random multi-frequency inputs, in accordance with IEEE 344 – 2004. Analyses and testing will conservatively envelope the conditions at equipment mounting locations resulting from the design basis maximum ground motion, plus margin.

RAI-6

Issue:

The OIP states that:

Demonstration of seismic adequacy will be achieved using one or more of the following methods:

1) demonstration of seismic motion consistent with that of existing design basis loads at the installed location;

2) substantial history of operational reliability in environments with significant vibration, such as for portable hand-held devices or transportation applications. Such a vibration design envelope shall be inclusive of the effects of seismic motion imparted to the components proposed at the location of the proposed installation;

3) adequacy of seismic design and installation is demonstrated based on the guidance in Sections 7, 8, 9, and 10 of IEEE [Institute of Electrical and Electronics Engineers] Standard 344-2004, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," (Reference 7) or a substantially similar industrial standard;

4) demonstration that proposed devices are substantially similar in design to models that have been previously tested for seismic effects in excess of the plant design basis at the location where the instrument is to be installed (g-levels and frequency ranges); or

5) seismic qualification using seismic motion consistent with that of existing design basis loading at the installation location.

Please provide a description of the specific method or combination of methods that will be used to confirm the reliability of the permanently installed equipment during and following seismic conditions to maintain its required accuracy.

Callaway Response:

All components except for the stainless steel sensor cable probe and the stainless steel bracket will be seismically tested in a rigidly-mounted condition equivalent to their as-installed condition. The cable probe and bracket are passive components for which maintenance of structural or physical integrity is the only requirement. The active components of the SFPIS will be functionally tested before and after seismic simulation. Water level inputs to the system will be simulated by grounding the system probe at selected, repeatable positions. Acceptance will be based on a comparison of indicated levels before and after seismic testing, for the same simulated level inputs at the probe.

RAI-7

Issue:

The OIP states that:

> The backup instrument system will be redundant to and independent of the primary instrument system. Independence of the two systems includes: location, mounting, power sources, power and signal wiring, and indications, to prevent any failure of one system from affecting the other system.

Please provide the following:

a) A description of how the two channels of the proposed level measurement system meet this requirement so that the potential for a common cause event to adversely affect both channels is precluded.

b) Further information on how each level measurement system, consisting of level sensor electronics, cabling, and readout devices will be designed and installed to address independence through the application and selection of independent power sources, the use of physical and spatial separation, independence of signals sent to the location(s) of the readout devices and the independence of the displays.

Callaway Response:

a) Within the SFP area, the brackets will be mounted as close to the Plant Northwest (primary sensor) and Plant Northeast (back-up sensor) corners of the pool as permanent plant structures allow. Placing the brackets and probes in the corners provides natural protection from a single event or missile disabling both channels. The cabling within the SFP area will be routed in separate hard-pipe conduit. All conduit routing and location of system components will be selected such that there will not be any Seismic Category II/I concerns.

b) Each channel will be installed using completely independent cabling structures, including routing of the interconnecting cable within the SFP area in separate hard-pipe conduits. Power sources will be routed to the electronics enclosures from electrically separated sources ensuring the loss of one train or bus will not disable both channels. The system displays will be installed in separate qualified NEMA 4X or better enclosures, with the primary display in the Control Room A/C Unit & Filtration Units Rm “A” and the back-up in the Control Room A/C Unit & Filtration Units Rm “B”. Primary and backup systems will be completely independent of each other, having no shared components.

RAI-8

Issue:

The OIP states that:

> An ac source will be selected for each system's 24-Vdc [Volts dc] UPS [Uninterruptible Power Supply] with power cables routed separately through existing or new tray/conduit and penetrations.
>
> Both channels will be powered by independent batteries following a loss-of-ac power. The minimum battery life will be 72 hours. The 72 hour battery life is a sufficient amount of time for an alternate source of power to be provided by the plant-specific procedures to address Reference 6. Each channel will include an externally accessible bulkhead connector and transfer switch for connection of an alternate power source.

If the level measurement channels are to be powered through a battery system (either directly or through an Uninterruptible Power Supply (UPS), please provide the design criteria that will be applied to size the battery in a manner that ensures, with margin, that the channel will be available to run reliably and continuously following the onset of the beyond-design-basis event for the minimum duration needed, consistent with the plant FLEX Program plans.

Callaway Response:

Battery sizing is in accordance with standard IEEE 485-2010. Design criteria applied are: Continuous system operation for 72 hours following loss of ac power. Calculation of system power consumption is based on the specified values listed in component manufacturer specifications. A 10% capacity margin is added to battery sizing calculations, following guidelines of IEEE 485-2010, Section 6.2.2. The time to restore AC power to the primary and backup channels will be within 72 hours, and will be established in the FLEX Support Guidelines.

RAI-9

Issue:

The OIP states that:

> Instrument channels will be designed such that they will maintain their specified accuracy without recalibration following a power interruption or change in power source.
>
> The accuracy will be within the resolution requirements of Reference 2, Figure 1.
>
> The instrument accuracy will be sufficient to allow personnel using plant procedures to determine when the water level reaches Levels 1, 2, and 3 without conflicting or ambiguous indication.

Please provide the following:

a) An estimate of the expected instrument channel accuracy performance (e.g., in percentage of span) under both i) normal SFP level conditions (approximately Level 1 or higher) and ii) at the beyond-design-basis conditions (i.e., radiation, temperature, humidity, and post-seismic and post-shock conditions) that would be present if the SFP level were at the Level 2 and Level 3 datum points.

b) A description of the methodology that will be used for determining the maximum allowed deviation from the instrument channel design accuracy that will be employed under normal operating conditions as an acceptance criterion for a calibration procedure to flag to operators and to technicians that the channel requires adjustment to within the normal condition design accuracy.

Callaway Response:

a) The instrument channel accuracy will be established during the design verification phase. An estimate of the expected instrument channel accuracy under normal and beyond-design-basis conditions will be provided in the 6-month update due in February, 2014.

b) The calibration procedure, and the methodology and basis for establishing both the criteria indicating the need for recalibration, and the acceptance criterion to be used with the procedure, will be established during the design verification phase. The methodology for defining these criteria will be provided in the 6-month update due in February, 2014.

RAI-10

Issue:

The OIP states that:

> Instrument channel design will provide for routine testing and calibration consistent with Reference 2 and Reference 3.

Please provide the following:

a) A description of the capability and provisions the proposed level sensing equipment will have to enable periodic testing and calibration, including how this capability enables the equipment to be tested in-situ.

b) A description of how such testing and calibration will enable the conduct of regular channel checks of each independent channel against the other, and against any other permanently-installed SFP level instrumentation.

c) A description of how functional checks will be performed, and the frequency at which they will be conducted. Describe how calibration tests will be performed, and the frequency at which they will be conducted. Provide a discussion as to how these surveillances will be incorporated into the plant surveillance program.

d) A description of what preventative maintenance tasks are required to be performed during normal operation, and the planned maximum surveillance interval that is necessary to ensure that the channels are fully conditioned to accurately and reliably perform their functions when needed.

Callaway Response:

a) Details of the capabilities and provisions of the level instrumentation for periodic calibration and testing will be established during the design phase. A description of these features and the way they will support in-situ testing will be provided in the 6-month update due in February, 2014.

b) A description of how the defined testing and calibration will enable the conduct of regular channel checks of each independent channel against the other, and against any other permanently-installed SFP level instrumentation will be provided in the 6-month update due in February, 2014.

c) Details of functional checks and instrument channel calibrations will be determined during the design phase. A description of how functional checks and calibration tests will be performed, and the frequency at which they will be conducted, will be provided in the 6-month update due in February, 2014. An explanation of how these surveillances will be incorporated into the plant surveillance program will be included.

d) The preventative maintenance tasks required to be performed during normal operation, and the planned surveillance intervals will be determined during the design phase. A description of these tasks and intervals will be provided in the 6-month update due in February, 2014.

RAI-11

Issue:

The OIP states that:

> The primary system indicator will be located in the vicinity of the control room. The backup system indicator will be located in an accessible location. The locations will allow for reading of the indicators following an event. The display will provide continuous indication of the SFP water level and will be consistent with the guidelines of Reference 2 and Reference 3.

Please provide the following:

a) The specific location for the primary and backup instrument channel display.

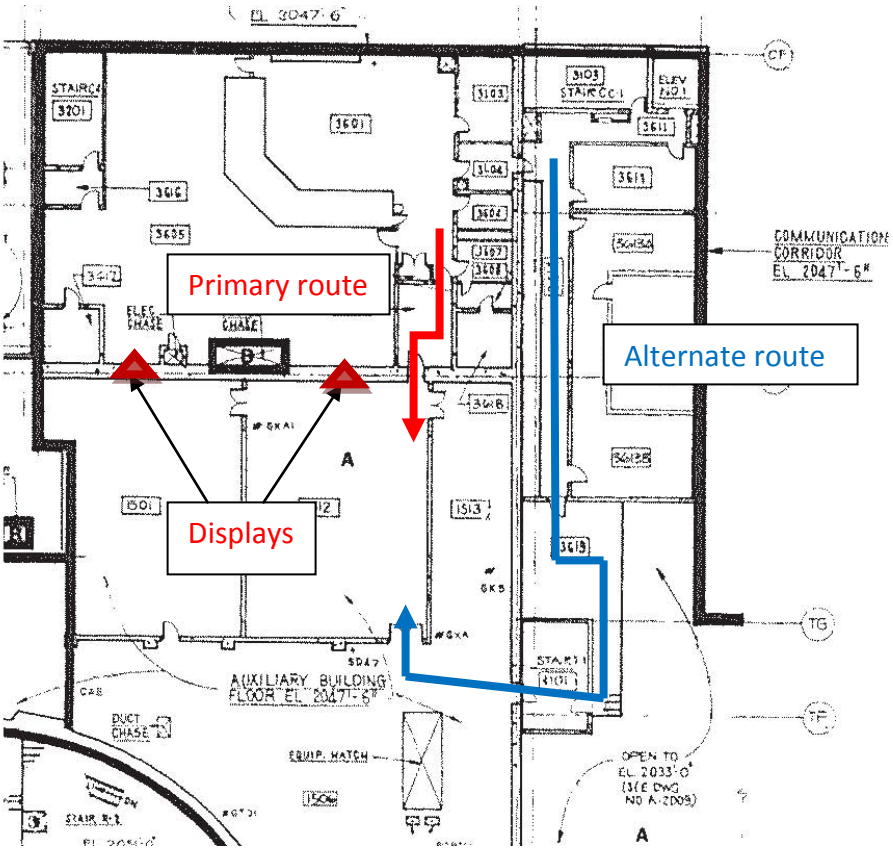
b) If the primary or backup display location is other than the main control room, then provide justification for prompt accessibility to displays including primary and alternate route evaluation, habitability at display location(s), continual resource availability for personnel responsible to promptly read displays, and provisions for communications with decision makers for the various SFP drain down scenarios and external events.

c) The reasons justifying why the locations selected enable the information from these instruments to be considered "promptly accessible" to various drain-down scenarios and external events.

Callaway Response:

a) The primary display will be located in the Control Room A/C Unit & Filtration Units Room “A”, Room 1512 EL-2047’-6”, on the approximate centerline of the Plant West wall. The backup display will be located in the Control Room A/C Unit & Filtration Units Room “B”, Room 1501 EL-2047’-6”, on the approximate centerline of the Plant West wall.

b) Below is an excerpt of a plant drawing being used as a sketch showing the locations of the displays and the Control Room. The displays are on the wall separating the Control Room from the Auxiliary Building, to the Plant East. The displays can be promptly viewed by Control Room staff due an access from the Control Room to the Control Room A/C Unit & Filtration Units Room “A”. An alternate path can be utilitized through the Communication Corridor, into the Auxiliary Building and into either the Control Room A/C Unit & Filtration Units Room “A” or “B”. During and after an event, the area of the displays will be accessible by Operations personnel from the Control Room. The Control Room A/C Unit & Filtration Units Rooms “A” and “B” are located in the Control Room envelope. The Control Room envelope is isolated and pressurized during an accident involving the release of radioactive gases in the surrounding zones. Due to the close proximity between the Control Room and the display locations, use of wireless handheld radios or other equipment for communications will not be necessary.



c) During all drain-down scenarios and external events the Control Room will be manned. With the displays just outside the Control Room they are considered “promptly accessible.”

RAI-12

Issue:

The OIP states that:

> Procedures will be developed using guidelines and vendor instructions to address the maintenance, operation, and abnormal response issues associated with the new SFP instrumentation.

Please provide a description of the standards, guidelines and/or criteria will be utilized to develop procedures for inspection, maintenance, repair, operation, abnormal response and administrative controls associated with the SFP level instrumentation, as well as storage and installation of portable instruments.

Callaway Response:

Procedures for inspection, maintenance, repair, operation, and abnormal response associated with the SFP level instrumentation will be developed consistent with Appendix A-1 of NEI 12-2. Site procedures will be prepared, reviewed and approved in accordance with Callaway Plant administrative controls, using the vendor technical manual and other documentation. The vendor technical manual and documentation will include principles of operation, inspection and maintenance recommendations, drawings and technical documentation, individual component manufacturer manuals and documentation and recommended spare parts. Additional procedures for abnormal response will be developed in conjunction with FLEX implementation.

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Issue:

The OIP states that:

> Processes will be established and maintained for scheduling and implementing necessary testing and calibration of the primary and backup SFP level instrument channels to maintain the instrument channels at the design accuracy. Testing and calibration of the instrumentation will be consistent with vendor recommendations and any other documented basis.

Please provide the following:

a) Further information describing the maintenance and testing program the licensee will establish and implement to ensure that regular testing and calibration is performed and verified by inspection and audit to demonstrate conformance with design and system readiness requirements. Include a description of your plans for ensuring that necessary channel checks, functional tests, periodic calibration, and maintenance will be conducted for the level measurement system and its supporting equipment.

b) A description of how the guidance in NEI 12-02 Section 4.3 regarding compensatory actions for one or both non-functioning channels will be addressed.

c) A description of what compensatory actions are planned in the event that one of the instrument channels cannot be restored to functional status within 90 days.

Callaway Response:

a) Maintenance and testing of the SFP level instrumentation system will be performed in accordance with the Callaway Plant preventive maintenance program procedure based on vendor recommendations. The design change program at Callaway Plant contains provisions for identifying such maintenance and testing requirements as part of the design process. Specific information regarding the maintenance and testing will be provided in the February, 2014 6-month status update after final design details and vendor information is obtained.

b) Callaway will implement measures to minimize the possibility of either the primary or backup channel being out of service for any extended period. Sufficient spare components and materials will be maintained to enable timely repair or replacement of defective components. Callaway will follow the NEI 12-02 guidance with regard to the time periods when one or more channels may be out of service.

c) If a channel is non-functional, a corrective action document will be initiated and actions taken to correct the deficiency within 90 days as described in NEI 12-02. The technology selected for level instrumentation is easily replaceable as components are passive and modular. Sufficient spares will be available on-site and the vendor can supply parts in a timely manner.