NEI 13-02 FAQ Review and Industry Overall Integrated Plan Template for NRC Order EA-13-109

NRC Public Meeting

March 5, 2014

BWR OWNERS' GROUP

NEI

NUCLEAR ENERGY INSTITUTE

Agenda

- Meeting Objectives
- FAQ Reviews
  - FAQ List of Topics
  - NRC Comments on FAQ HCVS-01, 03 and 05
  - HCVS-09: Toolbox Approach
- White Paper Topics
  - List of Topics
  - HCVS-WP-01: Dedicated Equipment
  - HCVS-WP-04: Interaction of the FLEX/HCVS Orders
- Template Development Information and Key Dates
- Review of NRC Comments on Hatch Draft OIP
- Pilot Plant Project
- Open Discussion
- Follow-up

Meeting Objectives

- Feedback of the following:
  - Presented White Paper and FAQs
  - Revision of the OIP Template
    - Nine Mile Point Unit 2 OIP Differences
  - Affirmation of OIP Template Schedule

FAQ Reviews

FAQ Number	NEI 13-02 Section	Subject
HCVS-01	4.2.2, 4.2.3	HCVS Primary Controls and Alternate Controls and Monitoring Locations
HCVS-02	1.2.6	HCVS Dedicated Equipment
HCVS-03	1.2.5, 1.2.6, 4.2.3	HCVS Alternate Control Operating Mechanisms
HCVS-04	4.1.5	HCVS Release Point
HCVS-05	4.1.4, 4.1.6, 6.2	HCVS Control and 'Boundary Valves'
HCVS-06	Multiple	FLEX Assumptions/HCVS Generic Assumptions
HCVS-07	4.2.5	Consideration of Release from Spent Fuel Pool Anomalies
HCVS-08	4.2.2, 4.2.4	HCVS Instrument Qualifications
HCVS-09	Multiple	Use of Toolbox Actions for Personnel

FAQ HCVS-01, 02, 03, 04, 05, 06, 07 and 08 have been submitted for NRC Concurrence

Review NRC Comments on FAQ HCVS-01

- Instrumentation
  - Under the response support Order Element 1.1.4, the HCVS controls and displays (instrumentation) need to be included in the habitability answer.
    - Added details on application to instruments

Review NRC Comments on FAQ HCVS-01

- Habitability
  - The design of MCR to conform to GDC 19/Alternate Source term is for a specific set of evaluated accidents such as LOCA with mitigation systems such as the MCR filtration systems functioning. Under ELAP conditions, the benefit of the filtration systems is lost for at least 24 hours in Order EA-13-109 space. The staff agrees that the MCR is a relatively safer location, but stating that it will conform to GDC 19 under the scenario is a stretch. Since Order EA-13-109 specifically deals with severe accident, the implementation of the order has to specifically recognize that conditions in MCR may not be exactly be in compliance with GDC 19 and address the measures that are available and can be taken to show that the HCVS can be operated under such condition (e.g. stay times, protective clothing, respiratory protection).
    - Added criteria that the MCR is dose tolerant and no contamination from this scenario

Review NRC Comments on FAQ HCVS-01

- Thermal
  - The evaluation of temperature and heat loads due to the proximity of undercooled containment should include the consideration of severe accident conditions in the containment.
    - Added Severe Accident conditions to the under cooled bullet
- Time Frame
  - The OIPs should clearly state the minimal operator actions that are being relied on to assure operating capability of HCVS equipment. If the actions are coming from some other guidance such as FLEX, provide a cross reference to where the information can be found.
    - Added direction for OIP inclusion

Review NRC Comments on FAQ HCVS-03

- Instrumentation
  - Shouldn't "alternate manual operation" include not only the "final control element" as per ISA terminology but also support indications for the operator decision, since the operation of the HCVS is dependent on a working primary variable measurement?
    - Industry needs further clarification on manual action of instrumentation

Review NRC Comments on FAQ HCVS-05

- **Description**
  - In the second paragraph, it is not clear what is meant by "CIVs connected to Containment Atmosphere not associated with HCV". For instance, all CIVs in the enclosed sketch have an association with HCVS. Clarify in the FAQ, which CIVs meet the intent of this statement.
    - Added clarifying statement
- **Valve Definitions**
  - It appears like there are five categories of valves, CIVs, CIV and Control Valve, CIV and Boundary valve, Control Valve, and Boundary Valve, which can be divided into three definitions, CIV, Control Valve and Boundary Valve. Staff recommends that the HCVS schematics in each plant's OIP template include the demarcation of the valves into the separate categories as depicted in the example sketch in the FAQ. Staff also recommends that all interconnections with the vent path, including connections to plant or vent stack be shown (e.g. ventilation, off-gas) clearly denoting if the connections have boundary valves or not.
    - Clearly identified group and added table

Review NRC Comments on FAQ HCVS-05

- **Testing Criteria and Valve requirements and Valve Type-**
  - The OIPs should include details of the current design of the boundary valves (in terms of isolation on initiation of the HCVS), and the modifications that will be performed to achieve the desired operation as a result of Order EA-13-109.=> desire further clarification on manual action.
    - Added direction to add detail and suggested table on sketch

FAQ Reviews

- HCVS-09: HCVS Toolbox Use
  - Document the use of Toolbox approach for collateral actions that will be symptom based but are within the skill of the craft or general personnel knowledge.
  - Examples:
    - Opening doors when room temperatures become elevated
    - Using flashlights to supplement pathway use
    - Exchange of personnel, use of ice vests, etc. when action is in an uncomfortable environment, not life threatening
    - Utilizing small fans for air movement, possibly powered from small portable generators and extension cords

White Paper Topics

- **HCVS-WP-01: HCVS Dedicated Motive Force**
  - Scope of operator actions for selected HCVS electrical and pneumatic supplies
- HCVS-WP-02: HCVS Cyclic Operations Approach
  - Accident sequence
  - Number of vent cycles
  - Radiological limitations from HCVS operation
- **HCVS-WP-03: Hydrogen/CO Control Measures**
  - Passive measures
  - Active measures
- **HCVS-WP-04: FLEX/HCVS Interactions**
  - Portable equipment use under severe accident and BDBEE conditions

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Motive Force
  - Scope of operator actions for selected HCVS electrical and pneumatic supplies
  - Some components in the HCVS system are powered electrically or pneumatically by non-dedicated sources as described in the plant CLB documents. Examples include:
    - Inverters that supply AC power to solenoids for Primary Containment Isolation valves may be the same power source used for HCVS solenoids,
    - Station batteries that supply DC power to HCVS solenoids may also supply other containment isolation valves,
    - Station batteries that supply DC power to instrumentation in the main control room may also be used to indicate the need for HCVS operation and the status of the HCVS,
    - Plant safety-related air or nitrogen systems used to operate isolation valves or safety-relief valves may be the same pneumatic supply used to operate HCVS valves.

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Motive Force
  - It is clear that some portions of HCVS and HCVS supporting systems may be shared with other plant systems.
  - Referencing NEI 13-02 Section 6.1
    - Examples of non-simple/easily accomplished electrical operator action would include:
      - Connecting portable generators to re-power station switchgear,
      - Connecting portable battery chargers to charge batteries,
      - Connecting portable batteries or power supplies directly to valve solenoids,
      - Connecting portable batteries or power supplies directly to needed instrumentation.
    - Examples of non-simple/easily accomplished pneumatic operator action would include:
      - Connecting portable air compressors to maintain HCVS or station compressed air pressurized,
      - Replacing compressed gas cylinders to replenish pneumatic supplies,
      - Connecting portable gas bottles or air compressors directly to HCVS components, such as valve actuator tubing.

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Power and Motive Force
  - Referencing NEI 13-02 Section 4.2.6.1.2
    - Examples of operator actions that are not considered non-simple/easily accomplished and may be used during the first 24 hours of the sustained operational period include:
      - Operation of permanently installed switches or disconnects to re-align power supplies,
      - Operation of breakers or switches to shed loads as part of battery life extension actions,
      - Operation of permanently installed valves to align installed backup pneumatic supplies.

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Power and Motive Force
  - Electrical and pneumatic supplies that support the HCVS function may support non-HCVS functions provided the following conditions are met:
    - The electrical and/or pneumatic supplies can be shown to support the first 24 hours of HCVS sustained operation without the need for non-simple/easily accomplished operator action as described above.
    - The electrical and/or pneumatic supplies can be shown to support the HCVS function for the remainder of the sustained operational period after 24 hours, but for this time period, actions to replenish power and compressed gas supplies are acceptable.

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Power and Motive Force
  - Examples of evaluations for Operator Actions are:
    - If load shedding is planned as an action to extend station battery life, the pathway to/from and the location of the load shedding action must be evaluated to verify that they will be safe for the operator when the load shedding would occur.
      - One method to assure successful load shedding is to plan for early load shedding, long before any core damage could occur (timing of action).
      - Another method would be to plan for load shedding in a location evaluated to be safe for operation at the time the load shedding would occur, with or without a severe accident (location of action),
    - If backup nitrogen bottles are to be used to maintain 24-hour functionality, the pathway, location and timing of the operation of the valves to align them for use must be evaluated similarly to the load shedding action evaluation.

White Paper Topics

- HCVS-WP-01: HCVS Dedicated Motive Force
  - Conclusion:
    - The use of some plant components to supply HCVS electrical and pneumatic power is acceptable provided these components can supply this power for 24 hours with simple and easily accomplished operator action.
    - After 24 hours, the use of portable equipment to replenish these electrical and pneumatic power supplies per the NRC Order is acceptable provided the planned actions are evaluated under the plant conditions that could be reasonable to expect at the time and in the location the action will take place.

White Paper Topics

- HCVS-WP-03: Hydrogen/CO Control Measures

Option	Description	Advantages	Disadvantages
1	Design the entire vent piping beyond the primary containment isolation valves to withstand flammable gas detonation.	Completely passive • Allows venting start/stop with any valve	1. May require valve(s) to be upgraded due to loading 2. May require upgraded piping 3. May require upgraded pipe supports 4. Requires more rigorous stress and support analysis
2	Install a purge system to prevent flammable gas detonation.	1. Requires minimal modification to existing or as designed system 2. Eliminates detonation concern	1. Active feature 2. Manpower requirement 3. Additional maintenance 4. Additional failure mode
3	Design the system downstream of the secondary containment isolation valve (or flow control valve) to withstand flammable gas detonation. Once CIVs are opened, subsequent vent start/stop cycles are controlled by the single downstream valve	1. Minimizes piping potentially affected by detonation 2. Overall system failure modes are reduced because of the reduced valve cycles within the system (PCIVs will remain open when vent is lined up)	Downstream portion of piping still subject to disadvantages listed for Option 1 • Adds additional valve to the system • Additional maintenance and testing of the added valve • Additional failure mode (potential failure of the additional valve)

White Paper Topics

- HCVS-WP-03: Hydrogen/CO Control Measures

Option	Description	Advantages	Disadvantages
4	Install a check valve at the exhaust end of the vent stack to eliminate the ingress of air to the vent pipe when venting stops and the steam condenses.	1. No operator action required 2. Eliminates detonation concern	1. Additional maintenance 2. Additional failure modes (inability of check valve to open or to close once opened)
5	Install the secondary containment isolation valve (or flow control valve) at the exhaust end of the vent stack to eliminate the ingress of air to the vent pipe when venting stops and the steam condenses.	1. Eliminates detonation concern	1. Active feature 2. Manpower requirement 3. Additional maintenance and testing 4. Additional failure mode 5. Adds challenges to support and maintain a large mass with an offset actuator at the end of the vent.
6	Design and install expansion chambers/mufflers in the exhaust pipe to reduce the detonation load.	1. Completely passive 2. Minimizes detonation concern	1. Potentially requires valve(s) to be upgraded due to loading 2. Potentially requires upgraded piping 3. Potentially requires upgraded pipe supports 4. Potentially requires more rigorous stress and support analysis 5. May impose excessive flow restriction 6. May not reduce loading sufficiently

White Paper Topics

- HCVS-WP-04: FLEX/HCVS Interactions
  - The purpose of this paper is to define the relationships between Order EA-12-049, Mitigation Strategies (aka FLEX) and Order EA-13-109, Severe Accident Hardened Containment Vent System (aka SA HCVS).
    - The evaluation is to limit the unintended complications and potential impacts on the success of the FLEX mitigating strategies when applying the severe accidents conditions from the SA HCVS order.
  - The relationship between FLEX and SA HCVS is clearly defined that FLEX is to mitigate core damage while the SA HCVS is to protect the primary containment for a Beyond Design Basis External Event and a postulated ex-vessel core melt.
    - Thus the SA HCVS is required to be functional for FLEX mitigation actions, but applying any ex-vessel core melt criteria onto FLEX modifications and strategies is not a requirement.
    - Where necessary, interpretations of these relationships are based on the order language and the corresponding NEI guidance documents (NEI 12-06 and 13-02).

Template Development Information and Key Dates

- Template Development
  - *Pilot plant(s) identified – Hatch as MK I & NMP2 as MK II*
  - *Draft template by January 20, 2014 – Presented on Jan 15*
  - Final Draft template March 15, 2014 – After Pilots
  - NEI 13-02 Revision for **OIP template and FAQs by April 21, 2014**
- NRC-NEI Joint Template Meetings
  - *January 15, 2014 – Complete (Draft Template & 3 FAQ)*
  - *January 29, 2014 – (Template Elements & FAQs)*
  - *February 19, 2014 (Pilot Plant Hatch, FAQs & White Papers)*
  - March 5, 2014 (NMP2 Pilot Differences, FAQ & White Paper)
  - March 26, 2014 (NRC Feedback on OIP Pilots/Workshop Prep)
- Industry Template Workshop**, April 9-10 in Baltimore**
- **NRC-NEI Check-up Conference Call, April 30 or May 7**

Template Elements

Proposed Template with Order and ISG (NEI 13-02) Cross Reference:

- Introduction
- Part 1: General Integrated Plan Elements and Assumptions
- Part 2: Boundary Conditions for WW Vent with specifics about the compliance actions relative to the ISG and NEI 13-02 section 2
- Part 3: Boundary Conditions for DW Vent with specifics about the compliance actions relative to the ISG and NEI 13-02 section 3
- Part 4: Programmatic Controls, Training, Drills and Maintenance Elements
- Part 5: Milestone table elements
- Attachment 1: Portable Equipment
- Attachment 2: Sequence of Events Timeline
- Attachment 3: Conceptual Sketches
- Attachment 4: Failure Evaluation Table
- Attachment 5: References
- Attachment 6: Changes/Updates to this OIP
- Attachment 7: Open Items in HCVS OIP

Review of NRC Comments on Hatch February 18 Draft OIP

- Plant specific response is considered for 1, 3, 5-8 and 11-14
  - Verbal response and included in next draft targeted for March 12, 2014
- Question 2, 4, 9 and 10 are Generic and should be addressed in this forum

Review of NRC Comments on Hatch February 18 Draft OIP

- #2. Hatch, page 5 of 42 – Under the generic assumption 109-5, the statement appears to be segregating the existing containment instrumentation and controls from having to follow the Order EA-13-109. If this is true, then how will the performance of this existing instrumentation be evaluated under the severe accident conditions such as temperature, pressure, high humidity and radiation (ES-13-109 Order). Will there be any kind of analysis done? Will there be results for the analyses used to verify the design criteria and methodology for same seismic testing used for the new HCVS instrumentation? What about mounting and power considerations with the intrinsically safe or explosion proof?
  - No there will not be any additional analysis or change to containment instrumentation since Order Element 1.2.10 states "The design is not required to exceed the current capability of the limiting containment components." and is not part of the operation of the HCVS.

Review of NRC Comments on Hatch February 18 Draft OIP

- #4. Hatch, page 7 of 42 – Table 2-1 to be expanded to include the secondary mechanically manual operated final elements and add the primary element variable measurement instrumentation with options and possible alternatives for the operator.
  - The secondary method does not have to meet all the criteria of EA-13-109 and simple and easily accomplished operator actions can be credited even within the first 24 hours.
  - Table 2-1 is intended to show only simple and easily accomplished actions are needed for the primary actions within the first 24 hours.

Review of NRC Comments on Hatch February 18 Draft OIP

- #9. Hatch, page 16 or 42 – What are the control instrumentation qualifications for performance and accuracy?
  - HCVS performance accuracy qualifications need only be gross values since relative accuracy is not required, will typically follow Instrument Society of America (ISA) Industry standards for types of instruments chosen.
  - HCVS performance will typically utilize ISA Industry standards for types of instruments chosen, but will be governed by similar plant installed equipment as defined in NEI 13-02 section 5.3.1 “HCVS components including instrumentation should, as minimum, meet the quality design requirements of the plant”.
- Will the accuracy and environmental range of the existing wet well and containment pressure be analyzed and verified to function for a severe accident condition and provide the needed reliability for the HCVS cycling?
  - No, none of the existing containment instrumentation have specific qualifications for the EA-13-109 core ex-vessel conditions (typically beyond GDC criteria) and are not HCVS initiation components. (Order Element 1.2.10 “The design is not required to exceed the current capability of the limiting containment components”.)

Review of NRC Comments on Hatch February 18 Draft OIP

- #10. Hatch, page 17 of 42 – Will additional information describing how the proposed arrangement of the cabling and routing of the control cable be shown in a manner that provides physical protection for the function against a missile?
  - Not for inside the Seismic I buildings since missile generation is prevented. The location of these instruments is not similar to the Refueling Floor for EA-12-051 since there is not a roof structure to address.
  - Locations outside of the buildings will be protected per 5.2.3 of NEI 13-02 (The components including instrumentation external to a seismic category 1 (or equivalent building or enclosure should be designed to meet the external hazards that screen in for the plant as defined in guidance NEI 12-06 as endorsed by JLD-ISG-12-01 for Order EA-12-049.)

Major OIP Potential Differences

- Equipment Usage
  - Maximum Shared
  - Dedicated
  - Mixed Systems
- Discharge Point
- Power Supply Sequence
- Containment Protection Features
- Remote Manual Mechanisms

Nine Mile Point Unit 2
SA HCVS Pilot Template
Major Differences

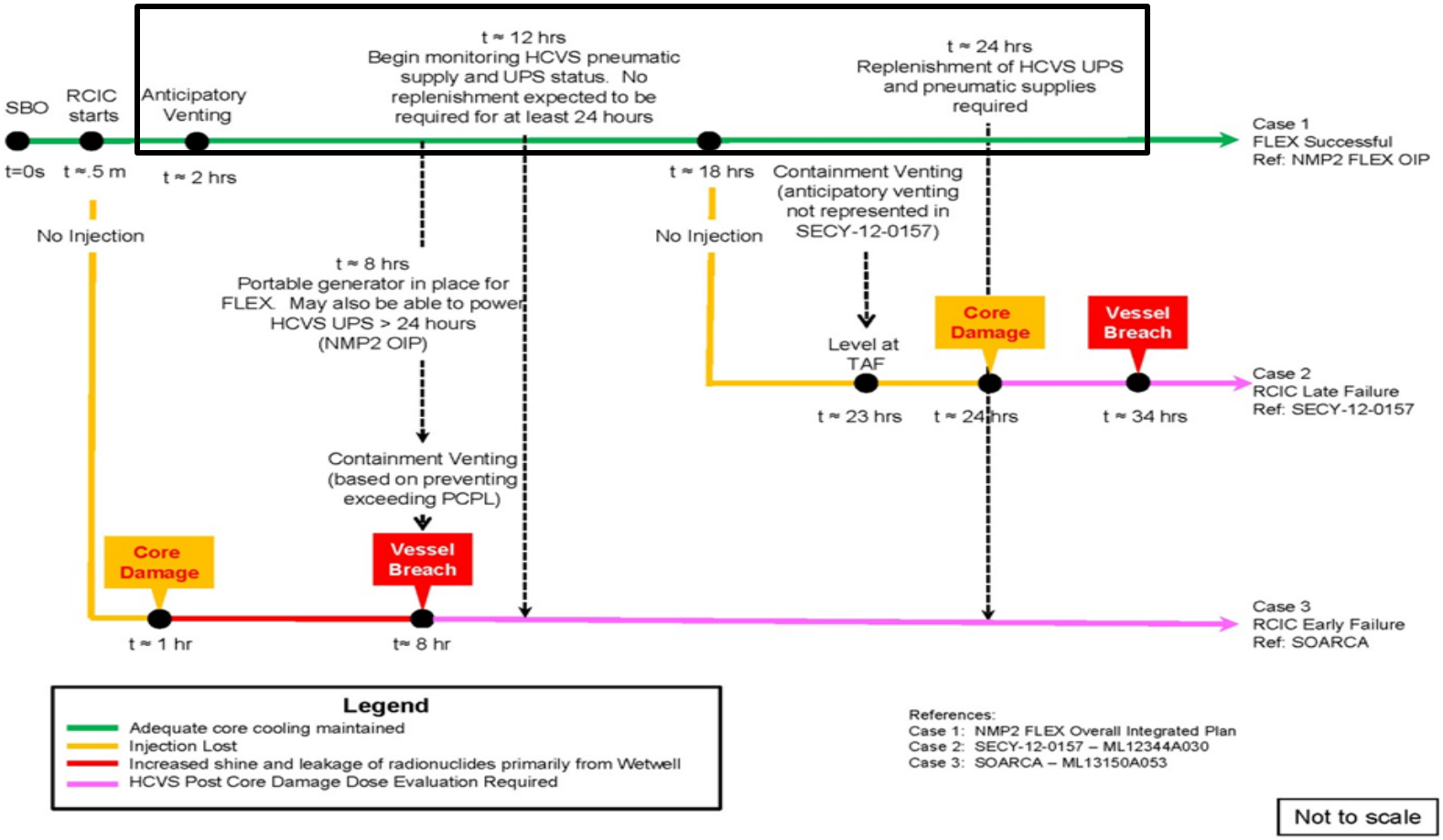
Review of Nine Mile Point Unit 2 Major Differences from Mark I pilot for Severe Accident HCVS OIP Template

NMP2 OIP

Site Characteristics Important to HCVS

- The primary location for HCVS operation will be the Main Control Room
- The alternate location for HCVS operation will be the Reactor Building track bay, northeast side of Reactor Building, ground elevation
- The HCVS release point will be at least 3 feet above the top of the Reactor Building on the northwest side of the Reactor Building

NMP2 OIP


SBO
RCIC starts
Anticipatory Venting
t ≈ 12 hrs
Begin monitoring HCVS pneumatic supply and UPS status. No replenishment expected to be required for at least 24 hours
t ≈ 24 hrs
Replenishment of HCVS UPS and pneumatic supplies required
Case 1
FLEX Successful
Ref: NMP2 FLEX OIP
t=0s
t ≈.5 m
t ≈ 2 hrs
t ≈ 18 hrs
Containment Venting (anticipatory venting not represented in SECY-12-0157)
No Injection
No Injection
t ≈ 8 hrs
Portable generator in place for FLEX. May also be able to power HCVS UPS > 24 hours (NMP2 OIP)
Level at TAF
Core Damage
Vessel Breach
Case 2
RCIC Late Failure
Ref: SECY-12-0157
t ≈ 23 hrs
t ≈ 24 hrs
t ≈ 34 hrs
Containment Venting (based on preventing exceeding PCPL)
Core Damage
Vessel Breach
Case 3
RCIC Early Failure
Ref: SOARCA
t ≈ 1 hr
t≈ 8 hr
Legend
Adequate core cooling maintained
Injection Lost
Increased shine and leakage of radionuclides primarily from Wetwell
HCVS Post Core Damage Dose Evaluation Required
References:
Case 1: NMP2 FLEX Overall Integrated Plan
Case 2: SECY-12-0157 – ML12344A030
Case 3: SOARCA – ML13150A053
Not to scale

NMP2 OIP Differences

Time and Environment Constraint Items

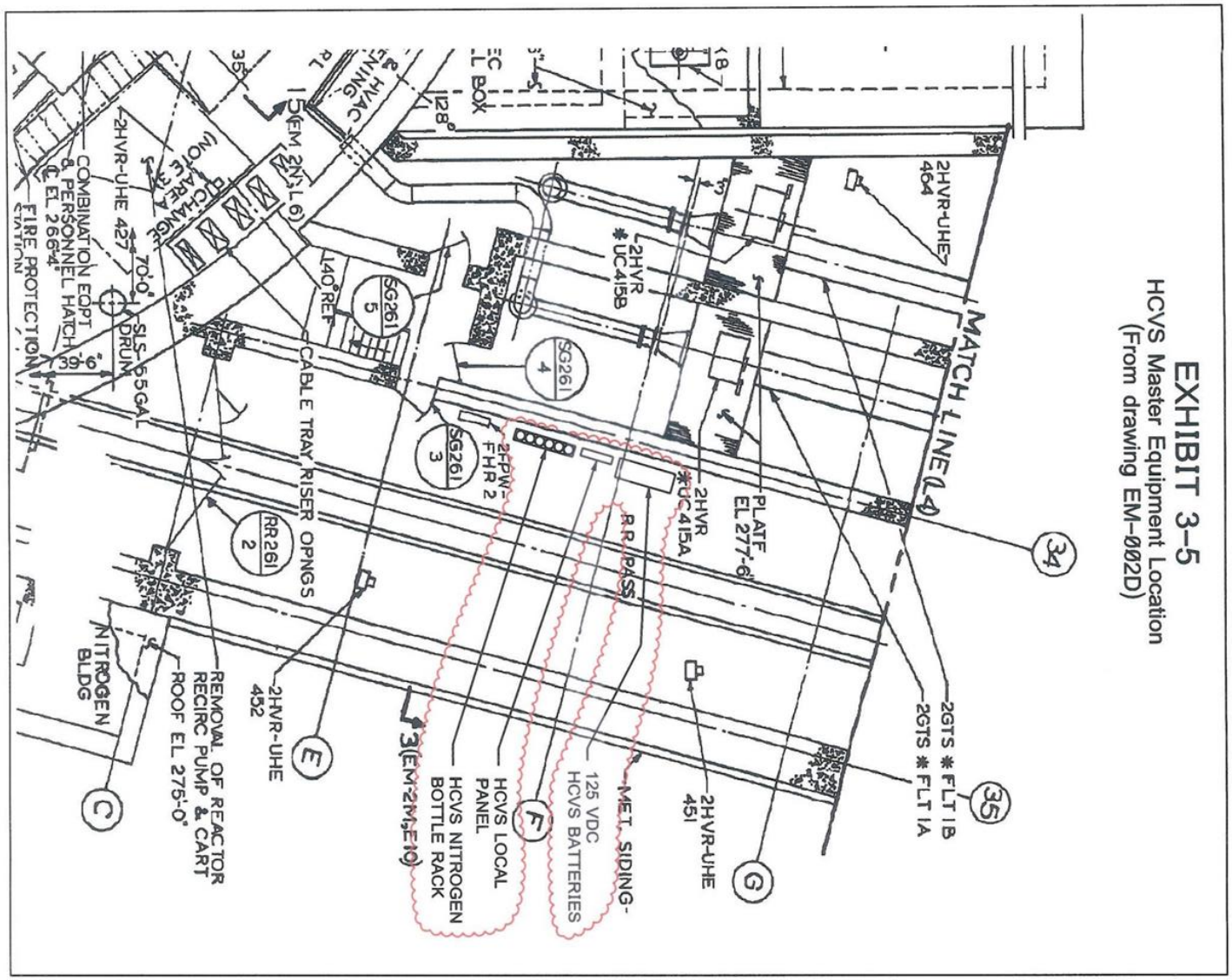
- 2 Hours, Initiate use of Hardened Containment Vent System (HCVS) per site procedures to maintain containment parameters within the limits that allow continued use of RCIC. Initiation of the HCVS can be completed with manipulation of only 4 switches located within the MCR. The reliable operation of HCVS will be met because HCVS meets the seismic requirements identified in NEI 13-02 and will be powered by dedicated HCVS batteries with motive force supplied to HCVS valves from installed nitrogen storage bottles. HCVS controls and HCVS instrumentation will be provided from a dedicated panel in the MCR. Other containment parameter instrumentation associated with operation of the HCVS is available in the MCR. Operation of the system will be available from either the MCR or a ROS. Dedicated HCVS batteries will provide power for greater than 24 hours. Therefore, initiation of the HCVS from the MCR or the ROS within 2 hours is acceptable because of the simplicity and limited number of operator actions. Placing the HCVS in operation to maintain containment parameters within design limits for either BDBEE or SA venting would occur at a time further removed from ELAP declaration as shown on the sequence of events timeline on the previous slide

NMP2 OIP Differences

Time and Environment Constraint Items (Cont'd)

- 24 Hours, Replace/install additional nitrogen bottles or install compressor. The nitrogen station will have extra connections so that new bottles can be added or an air compressor can be connected while existing bottles supply the HCVS. This can be performed at any time prior to 24 hours to ensure adequate capacity is maintained so this time constraint is not limiting

NMP2 OIP Differences

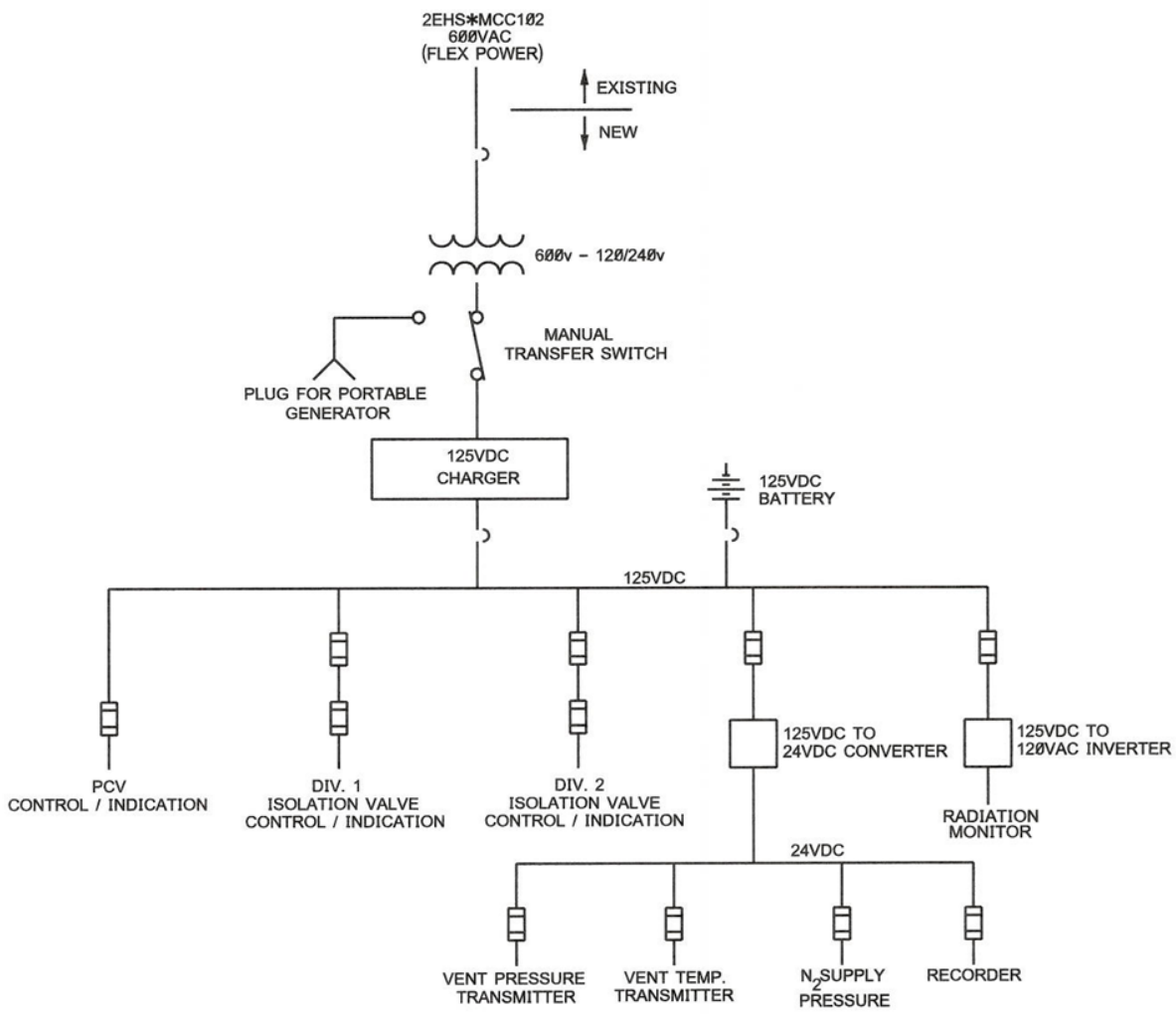


NMP2 OIP Differences

Time and Environment Constraint Items (Cont'd)

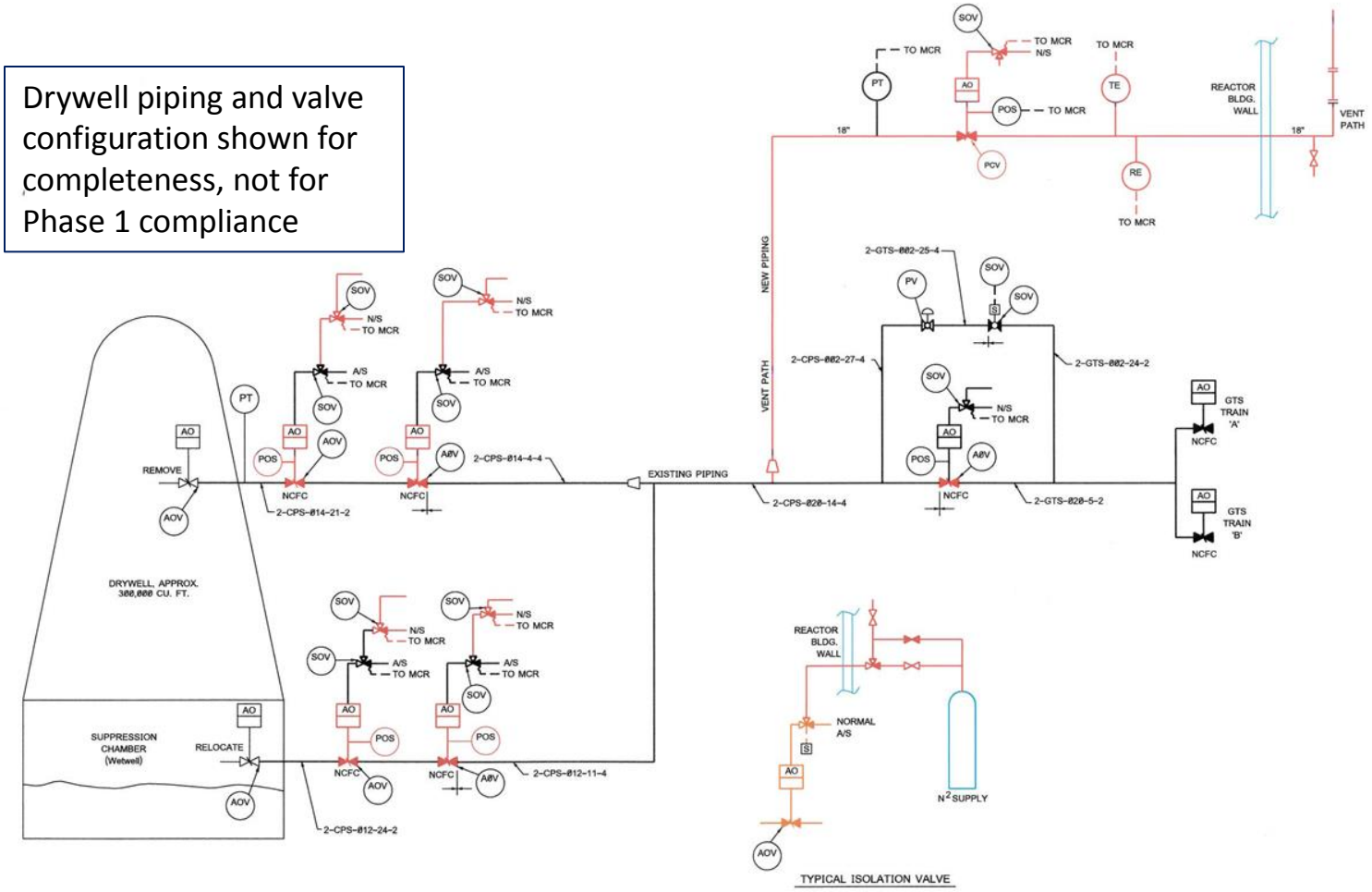
- 24 Hours, connect back-up power to HCVS battery charger. The HCVS batteries are calculated to last a minimum of 24 hours. The HCVS battery charger will be able to be re-powered either from the 600 VAC bus that will be re-powered from a portable diesel generator (DG) put in place for FLEX or locally (Reactor Building Track Bay) from a small portable generator
- The DG will be staged and placed in service within 8 hours (Reference *FLEX OIP*) and therefore will be available prior to being required. In the event that the DG is not available, a local connection will allow a small portable generator to be connected to the UPS to provide power

NMP2 OIP Differences



NMP2 OIP Differences

Drywell piping and valve configuration shown for completeness, not for Phase 1 compliance



NMP2 OIP Differences

Equipment Usage

- NMP2 will utilize a mixed system, sharing the following components
  - Containment penetrations
  - Inboard and Outboard PCIVs
  - Piping to HCVS vent tee
- Boundary with interfacing systems limited to
  - 20” AOV to Standby Gas Treatment System (GTS)
  - 2” SOV bypass around 20” AOV to GTS

NMP2 OIP Differences

GDC-56 Exemption

- The inboard primary containment isolation valves (PCIV) to be shared with the HCVS system are located inside the primary containment
- Most plants implemented a GDC-56 exemption as part of the plant design basis for an alternate configuration
- The inboard PCIV will be located outside the containment and thereby significantly improve the reliability of the HCVS system

NMP2 OIP Differences

Discharge Point

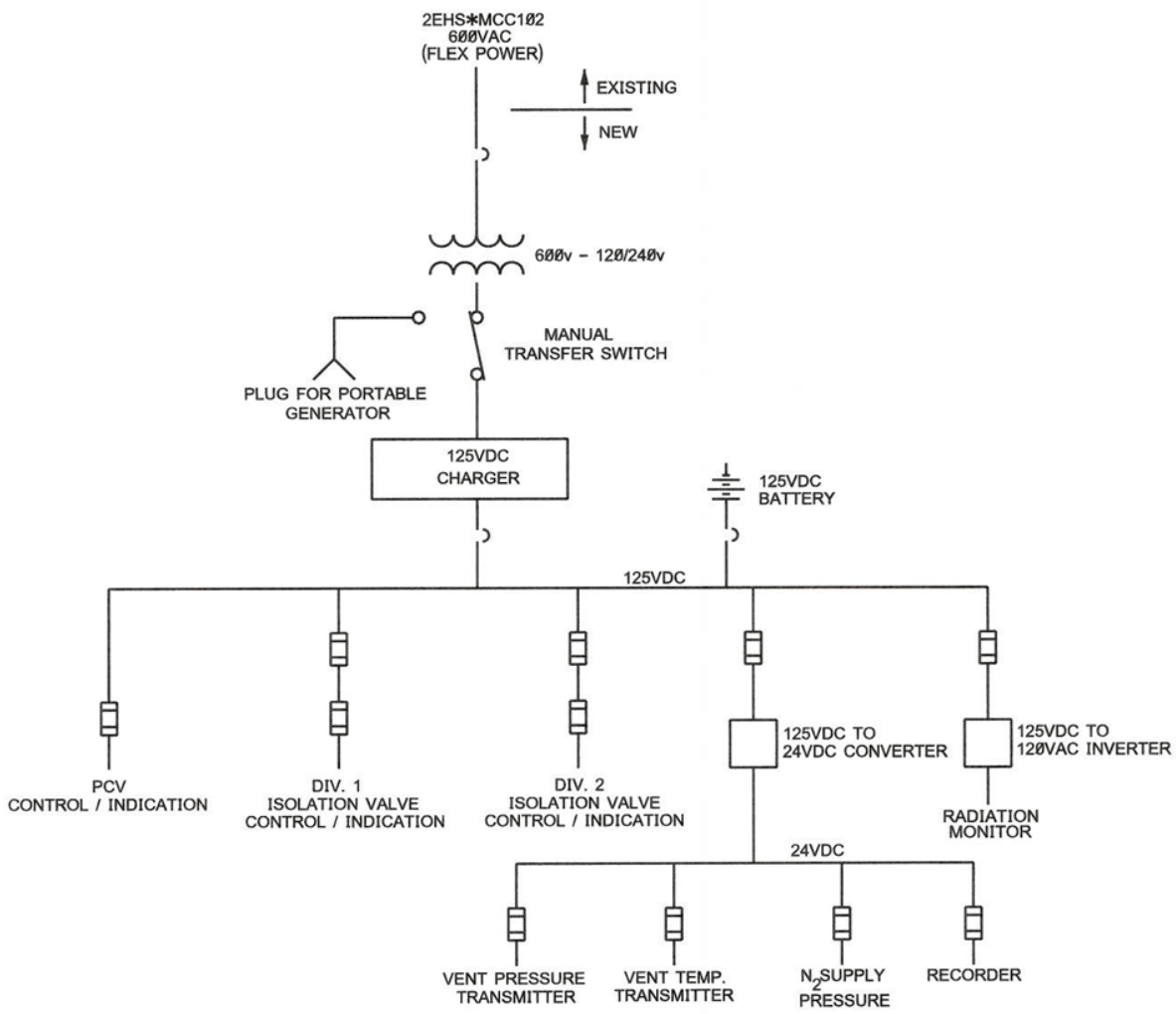
- NMP2 will utilize a release point above the Reactor Building roof independent of the metrological stack
- Follows criteria per FAQ HCVS-04

NMP2 OIP Differences

Power Supply

- NMP2 HCVS system will be powered by the Divisional Class 1E 600 volt power through a transformer and 125 volt battery charger during normal operation
- On loss of AC power, a battery capable of supplying HCVS loads for at least 24 hours will supply HCVS loads without Operator action
- A FLEX portable diesel will be connected to repower the 600 volt power within 8 hours to repower the HCVS battery charger
- A small portable 120/240 volt generator provides a backup to the FLEX diesel generator that will provide HCVS loads and battery charger through a manual transfer switch
- Station batteries will not be utilized for HCVS loads

NMP2 OIP Differences



NMP2 OIP Differences

Containment Protection Features

- Inadvertent actuation protection is provided by keylock switches used to power up the HCVS panel
- Additional keylock switches will be utilized for control of the shared HCVS/Primary Containment Isolation Valves (PCIVs)
- The HCVS valve double solenoid valve arrangement eliminates the need for defeating containment isolation signals using electrical jumpers or lifted leads
- There are no rupture discs in the NMP2 HCVS design

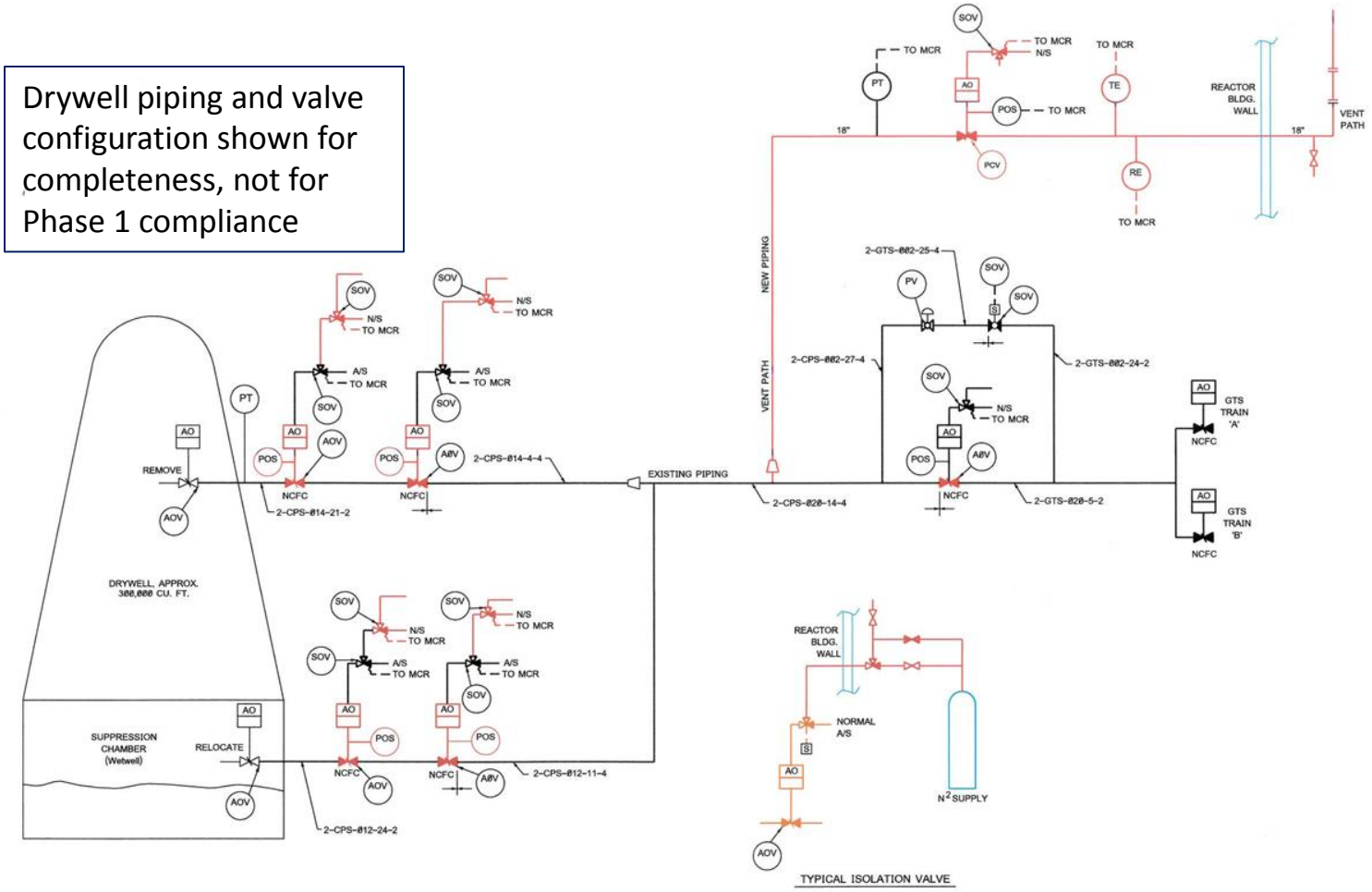
NMP2 OIP Differences

Remote Manual Mechanisms

- Manual valves in the pneumatic supply lines will provide alternate means for HCVS valve operation
- Electrical power is not required for this method
- A manual override for HCVS valve solenoids is being considered
- A handwheel for the PCV is being considered, but will not be credited due to environmental concerns in proximity to the valve

NMP2 OIP Differences

Drywell piping and valve configuration shown for completeness, not for Phase 1 compliance



NMP2 OIP Differences

Table 4A: Wetwell HCVS Failure Evaluation Table

Functional Failure Mode	Failure Cause	Alternate Action	Failure with Alternate Action Prevents Containment Venting?
Fail to Vent (Open) on Demand	Valves fail to open/close due to loss of normal AC power/DC batteries	None required – system SOVs utilize dedicated 24-hour power supply	No
	Valves fail to open/close due to depletion of dedicated power supply	Recharge system with FLEX provided portable generators	No
	Valves fail to open/close due to complete loss of power supplies	Manually operate backup pneumatic supply/vent lines at remote panel	No
	Valves fail to open/close due to loss of normal pneumatic supply	No action needed. Valves are provided with dedicated motive force capable of 24 hour operation	No
	Valves fail to open/close due to loss of alternate pneumatic supply (long term)	Replace bottles as needed and/or recharge with portable air compressors	No
	Valve fails to open/close due to SOV failure	Manually operate backup pneumatic supply/vent lines at remote panel	No
Fail to stop venting (Close) on demand	Not credible as there is not a common mode failure that would prevent the closure of at least 1 of the 3 valves needed for venting.	N/A	No
Spurious Opening	Not credible as key-locked switches prevent mispositioning of the HCVS CIVs and PCV.	N/A	No
Spurious Closure	Valves fail to remain open due to depletion of dedicated power supply	Recharge system with FLEX provided portable generators	No
	Valves fail to remain open due to complete loss of power supplies	Manually operate backup pneumatic supply/vent lines at remote panel	No
	Valves fail to remain open due to loss of alternate pneumatic supply (long term)	Replace bottles as needed and/or recharge with portable air compressors	No

Example Template

NMP2 Page 6, Table

Generic Assumptions Page 4, 5 & 6

Phase 1 Activities Timeline
Post OIP Template Development

Jun 2014 – Phase 1 OIP due

Jul – Aug 2014 – Develop 6-month status template

Oct 2014 – Phase 1 pilot plant ISE issued

Dec 2014 – All Phase 1 plant ISE issued

Dec 2014 – 1st 6-month status due

Estimated Phase 2 Guidance Timeline

Mar 2014	– NEI Working Group define goals and approach for Phase 2
Apr – May 2014	– NEI WG draft 13-02 Phase 2 scope from Industry perspective
Jun – Sep 2014	– NRC/NEI Draft 13-02 Phase 2 scope
Oct 2014	– NEI/BWROG Industry Comment and Feedback
Nov 2014	– NEI Phase 2 Draft Revision Provided to NRC for reference in ISG
Dec 2014	– NRC publish draft ISG for public comment
Feb 2015	– NRC Public comment period closed
Mar 2015	**– NRC Issues approved ISG**
Mar 2015	– NEI/NRC Workshop on Phase 2
Apr – May 2015	– NRC/NEI OIP Template structure and content without Pilots
May – Jul 2015	– NRC/NEI OIP Template Pilots including Option for No DW Vent Pilot
Aug 2015	– NEI/BWROG Draft OIP To Industry for Comment for Workshop
Sep 2015	– NEI/NRC OIP Workshop on Pilots and Template use
Oct 2015	– NEI OIP finalized and included in a revision to 13-02
Dec 2015	**– Stations OIP due to NRC**