NCSX RFD	**Number:** **NCSX-RFD-12-005**	**RFD Description:** **NCSX Vessel port manufacture**
Initiator: **Mike Manuel**		**Organization:** **Major Tool and Machine**
List of Impacted Documents: **NCSX-CSPEC-121-02; SE120-005; SE121-014**		
Cost Impact: ***(If none, so state)*** ***NONE***		
Schedule Impact: ***(If none, so state)*** ***NONE***		
Impact on Interfaces with Other WBS Elements/Items: ***(If none, so state)*** ***None***		
Full Description of the Deviation Requested: (Use continuation pages, e-mails, letter, sketches, etc. as needed and include amplifying information as appropriate) **DEVIATION:** Request authorization to substitute schedule 10 pipe for specified schedule 40 (except port 15). Note: Available supply of sch 40 would be used on Port 15. This would be done on all six 60 deg segments to maintain symmetry. Note: RFD-12-002 (ECP-027) previously approved substitution of schedule 10 pipe for schedule 40 pipe for 2-12 inch pipe. **JUSTIFICATON:** Limited supply of schedule 10 and schedule 40.		
Attachments: **N/A**		
Initiator Signature: Mike Manuel Date: May 6, 2005		

NCSX RFD Part II	**Number:** NCSX-RFD-12-005	**RFD Description:** NCSX Vacuum Vessel Port Manufacture

RLM: Brad Nelson	**Organization: ORNL**

Impact on Interfaces with Other WBS Elements/Items: *(If none, so state)*: WBS 3 – will reduce their allowable weight if Sch10 substituted for Sch40 pipe – how much is indeterminate until specifics are known .

RLM Recommended Disposition:

☐ **Approve** ☒ **Do Not Approve (If recommendation is to approve, ECP will be assigned)**

(1) Port 15 is not the area of concern. Ports 17 and 18 are the areas of concern. In addition, the potential impact on diagnostics will have to be assessed.

(2) Use of Sch10 in place of Sch40 throughout for the 3.5" pipe is unacceptable due to high stresses and deflections in the regions in question. An exhaustive search to locate the pipe or a thick wall tube as a substitute is highly recommended. However, if there is nothing available, as a last resort, it may be acceptable to splice Sch10 onto sections of the limited quantity of Sch 40 that is available. A minimum of 8" of Sch40 shall be used at the VV-to-shell interface and Sch 10 welded onto it, resulting in a step in the interior of the pipe.

(3) Only the 3.5" Ports 2A and 2B, 8A and 8B, 15A and 15B, and the spacer port may be permitted to utilize the Sch10 to Sch40 splices. Ports 17A, 17B, 18A, and 18B shall use Sch40 throughout and are not permitted to utilize the Sch10 splice.

(4) Regardless of the final disposition, Stellarator Symmetry must be preserved in all instances; what is done at one port location must be done in all corresponding ports.

(5) If splicing is eventually approved, welding, inspection, and acceptance of the splice welds shall conform to the requirements set forth in NCSX-CSPEC-121-02-06.

RLM Signature: ? Signature Not Verified Brad Nelson

Digitally signed by Brad Nelson
DN: cn=Brad Nelson, o=ORNL, ou=Fusion Energy Division, c=US
Date: 2005.05.18 09:09:11 -04'00'

Project Disposition: (Include ECP Number):

(1) Wholesale substitution of Sch10 pipe for Sch40 is **not authorized**. Splicing of Sch10 to Sch40 will be expeditiously investigated by the Project per the constraints above (e.g., impact on allowable diagnostic weight, specific ports, and minimum Sch40 lengths prior to splicing).

(2) **Exhaust all avenues to obtain Sch40 pipe.** NCSX Project will try to assist in identifying additional sources. **Do not proceed to implement splicing strategy** until such time that the Project concurs that all possible sources to obtain Sch40 pipe have been exhausted and that the impacts of the adoption of strategy will mean in terms of the impact on diagonostics are fully assessed.