

“이미 존재하는 Digital Data 활용 극대화”

Stress 자동화 Tools



S-Gen# Introduction

Download S-Gen#, <http://www.s-gensharp.com>



S-Report# Introduction

Download S-Report#, <http://www.s-reportsharp.com>



sPDFViewer Introduction

Download sPDFViewer, <http://www.spdfviewer.com>

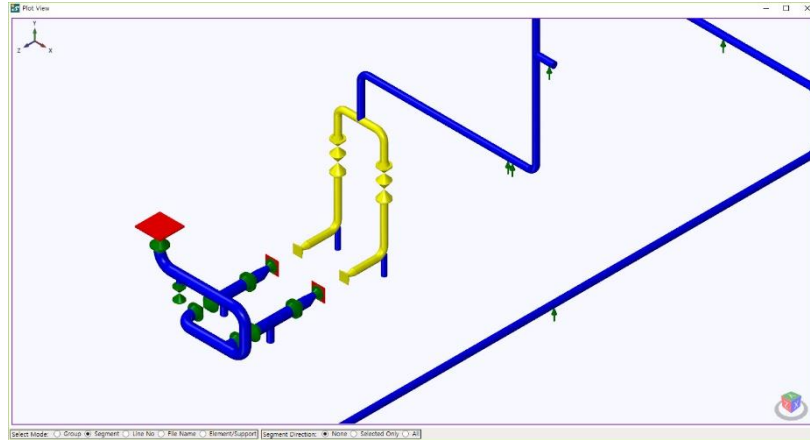
1393694 Alberta LTD.

Stress 업무 자동화를 통해 줄어드는 다섯가지 수작업

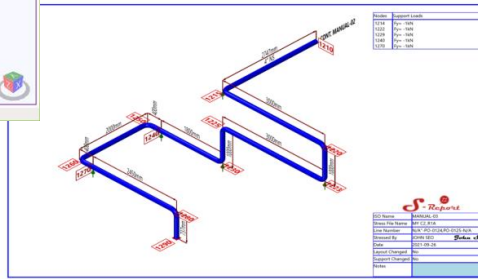
1. CAESARII Modeling



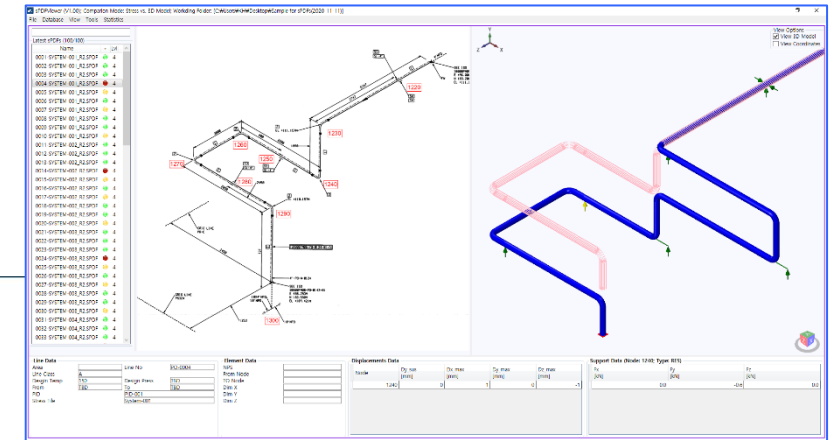
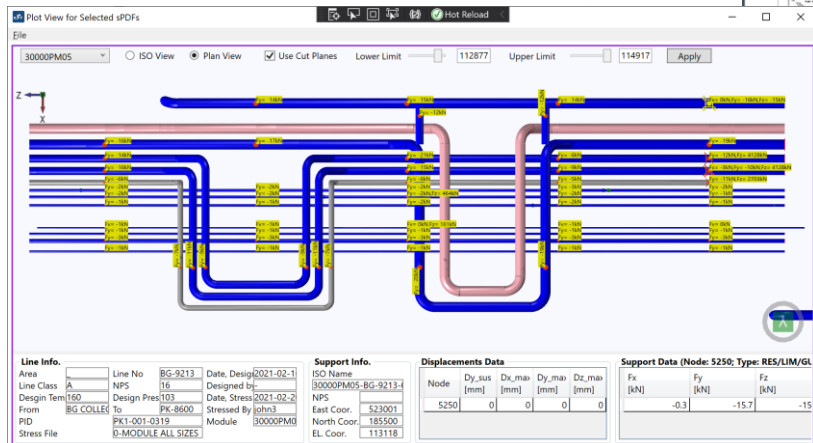
2. Stress Mark-Up



5. Check Print for IFC ISO vs. Stress ISO



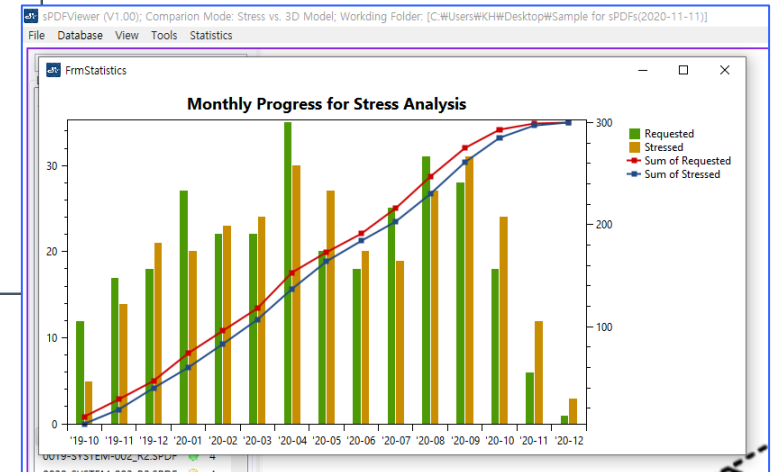
3. Support Load Information



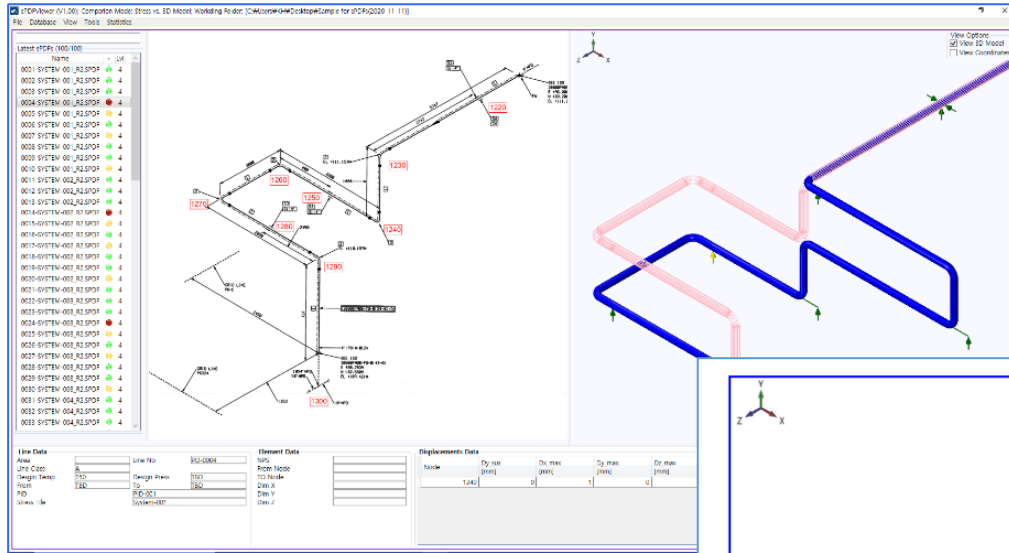
4. Stress Control Log Book Keeping

Check Print [03]
List of Differences

Node: N/A; Elbow changed. (Nearest Node: 1280)
Node: N/A; Elbow changed. (Nearest Node: 1260)
Node: N/A; Elbow changed. (Nearest Node: 1250)
Node: N/A; Support type(s), +Y not found from Stress ISO.
3D CAD Tags: S1-4" (Nearest)
Node: N/A; Support type(s), +Y not found from Stress ISO.
3D CAD Tags: S1-4" (Nearest)



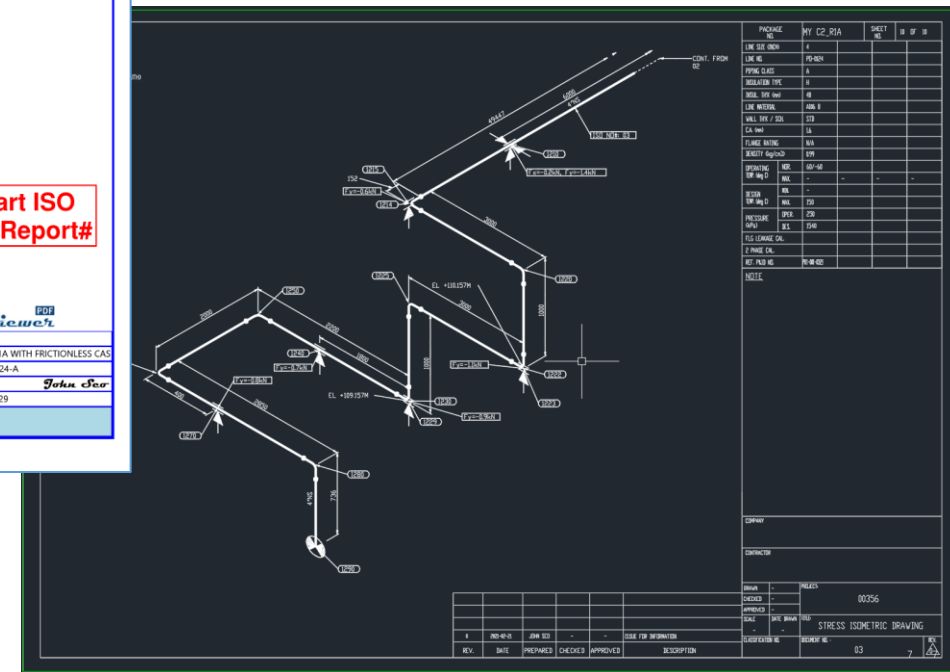
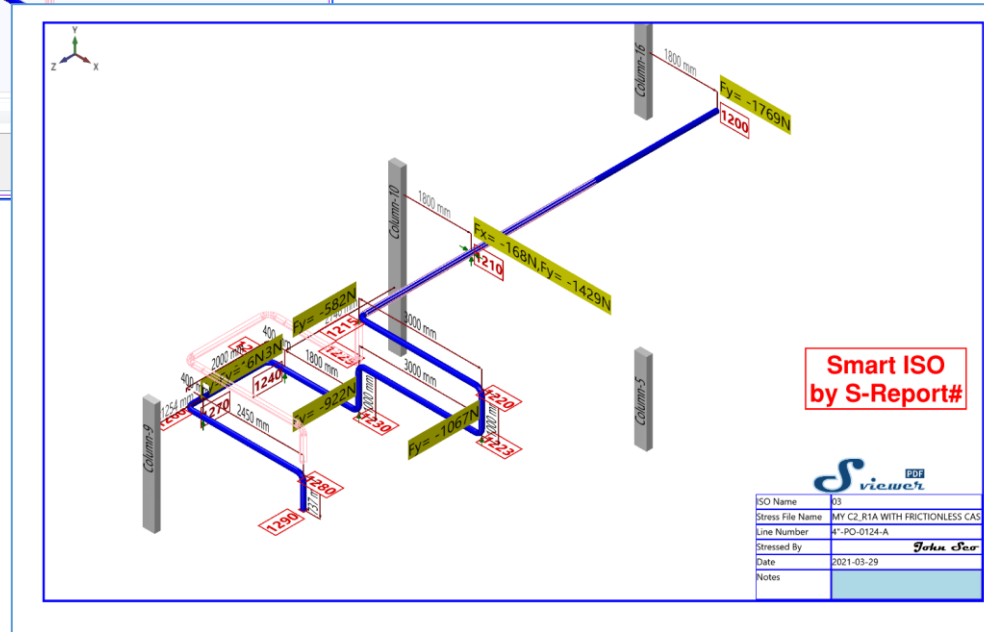
기존 Stress Mark-Up을 대체하는 세가지 방법



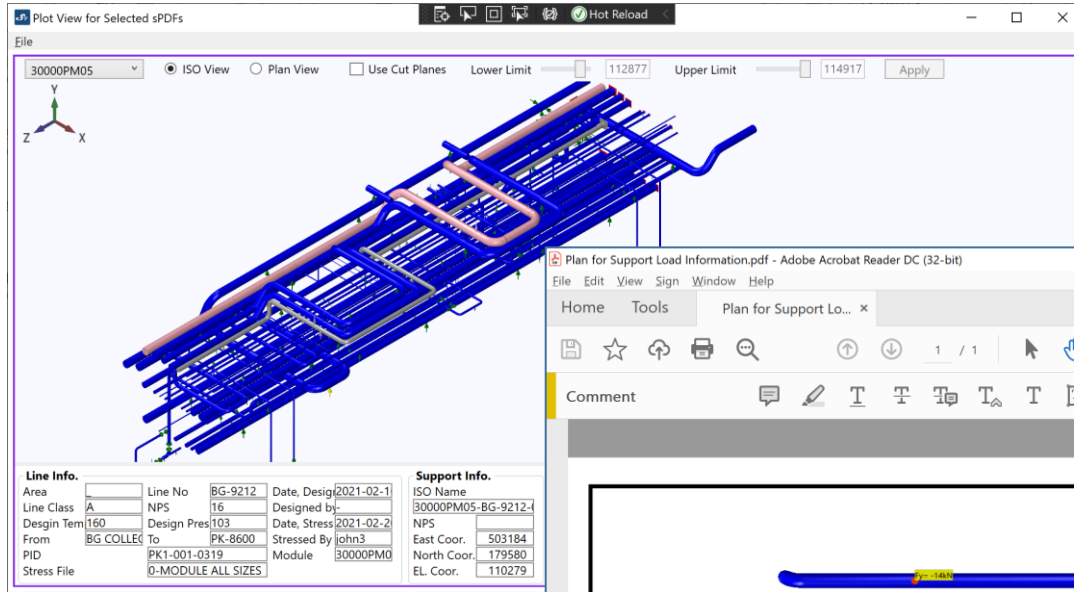
방법-1: sPDFViewer를 통한 **Smart Display**. Layout 변경, Support Loads, Displacement 의 확인.

방법-2: Plot Shot을 기준으로 **Smart ISO** 생성 (*.pdf). 변경된 **Dimension**만 표시.

방법-3: S-Report# 및 C2를 통해 **C2 ISO** 생성 (*.dwg). **3D ISO**와 동일한 **Break Point**.



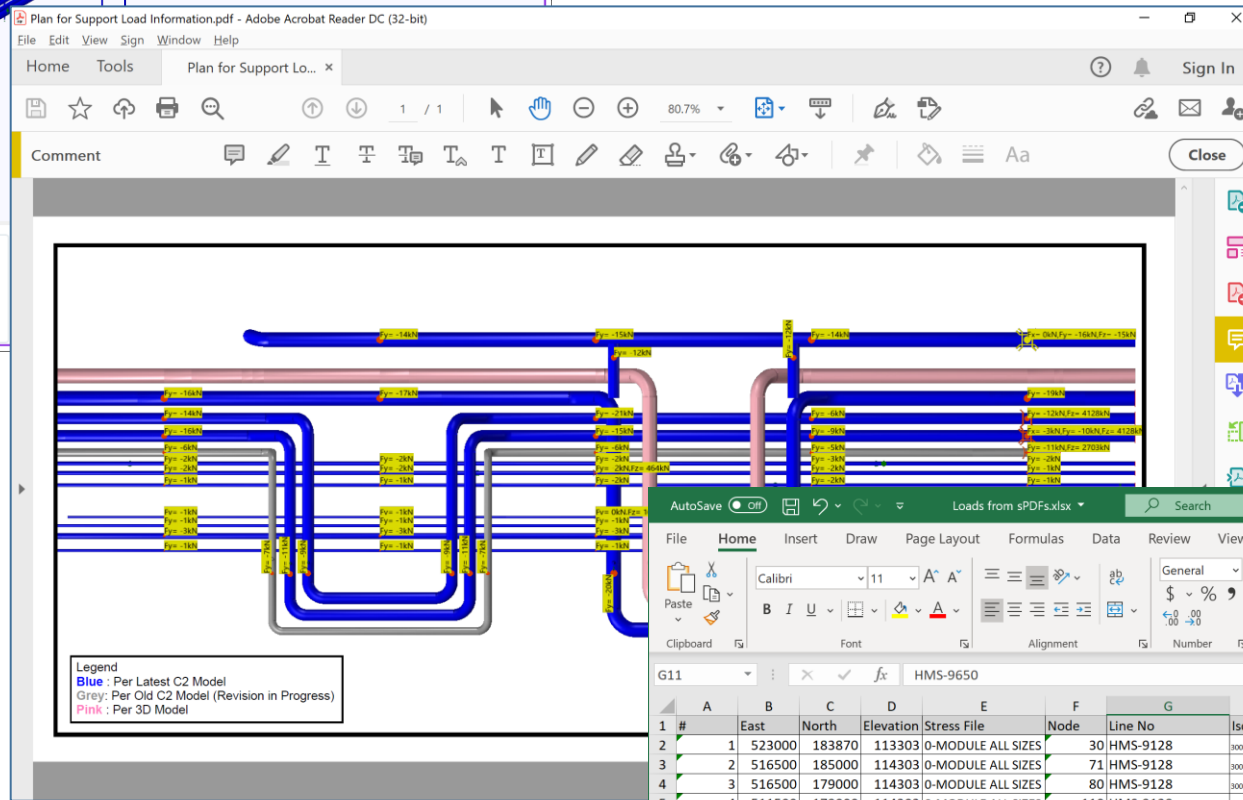
기존 Support Load Inform Plan Drawing을 대체하는 세가지 방법



방법-1: sPDFViewer를 통한 Support Loads, Displacement 의 확인.

방법-2: **Smart Plan** Drawing Export (.pdf).

방법-3: Support Load Table Export (*.xlsx). 구조해석 프로그램 Input 자동화의 가능성.



#	East	North	Elevation	Stress File	Node	Line No	Iso Name	NPS	Type	Case	Fx	Fy	Fz	Dx	Dz
1	523000	183870	113303	0-MODULE ALL SIZES	30	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	16	RES	MAX	0.0	-19.0	0.0	1	5
2	516500	185000	114303	0-MODULE ALL SIZES	71	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	12	RES	MAX	0.0	-11.8	0.0	4	19
3	516500	179000	114303	0-MODULE ALL SIZES	80	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	16	RES	MAX	0.0	-19.4	0.0	12	2
4	511500	179000	114303	0-MODULE ALL SIZES	110	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	16	RES	MAX	0.0	-20.0	0.0	11	3
5	511500	185000	114303	0-MODULE ALL SIZES	131	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	12	RES	MAX	0.0	-11.6	0.0	3	-13
6	505000	183870	113303	0-MODULE ALL SIZES	160	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	16	RES	MAX	0.0	-16.7	0.0	0	0
7	499000	183870	113303	0-MODULE ALL SIZES	170	HMS-9128	30000PM05-HMS-9128-01_1.SPDF	16	RES	MAX	0.0	-15.6	0.0	1	11
8	524610	185000	112144	0-MODULE ALL SIZES	220	HMS-9694	30000PM05-HMS-9694-01_0.SPDF	3	RES	MAX	0.0	-0.5	0.0	-2	2

Quick Reference (S-Gen#, S-Report#, sPDFViewer)



"3D Model을 Stress Model로 변경"

In:

3D Iso Source인 pcf / idf 파일들 혹은
sPDF(*) 파일들 (Level-1)
+ Prj Spec DB(**) (Optional)

Out:

CAESARII 파일.
sPDF(*) 파일들 (Level-2)

Features:

Isogen/Isodraft을 사용하는 모든 3D CAD 시스템에 사용 가능. PDS (SP3D), PDMS (AVEVA Marine/E3D), AutoPlant, CADWorx.
Segment Management (Node Numbering 순서 조정 가능)

"Stress 해석 결과를 처리"

In:

C2 Report + sPDF(*) 파일들 (Optional)

Out:

Support Load Table (.xlsx)
sPDF(*) 파일들 (Level-3 혹은 4)
AutoCAD C2 Isometric Drawing (Optional, C2 Isogen 활용)

Features :

3D Iso와 동일한 Iso Break를 갖는 C2 Iso 생성 가능.

"Stress 해석 결과를 확인"

In:

sPDF(*) 파일들 (Level-3 혹은 4)

Out:

IFC ISO vs Stress ISO Check Prints (.pdf)
Pipe Support Load Table for Structure (.xlsx)
Support Load Information Plan (.pdf)
AutoCAD C2 Isometric Drawing (.dxf)

Features :

Freeware.
3D Model vs. Stress Model 비교 기능.
Stress Iso 검색 및 Progress 관리.

Tips!

(*) **sPDF란?** pdf 포맷의 파일로서 Drawing + Digital Data의 운반체로 사용된다. 기존 Acrobat Reader나 Bluebeam등을 사용하여 Drawing의 확인, 인쇄가 가능하다. Freeware인 sPDFViewer을 사용하면, Digital Data를 활용하여 Stress Model 및 해석 결과를 확인할 수 있다. 확장자는 .sPDF.

Level-1: Drawing + Iso Source, **Level-2:** Level-1 + Design Data, **Level-3:** Level-2 + Stress 해석 결과, **Level-4:** Level-3 + C2 Iso (.dxf)

(**) **Project Specification Database란?** Access Database형태로 Line List, Pipe Specification 그리고 Insulation Table을 포함하고 있음.

Stress 업무 Flow Chart (Critical Lines)



Structural

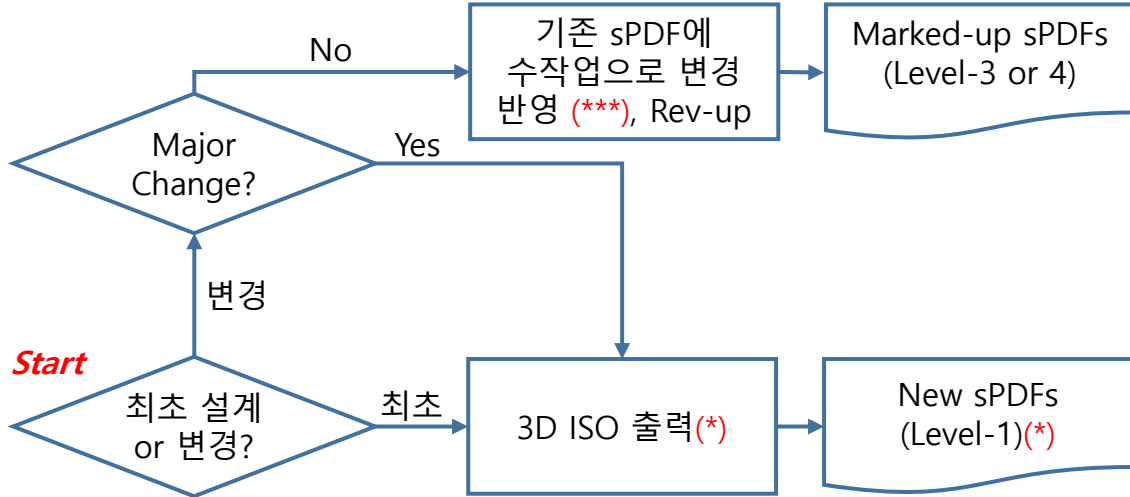
구조해석에 Piping Stress 해석 결과 반영.
Smart Plan Drawing 추출.
IFC ISO vs. Stress ISO Check Print 생성

Piping Design

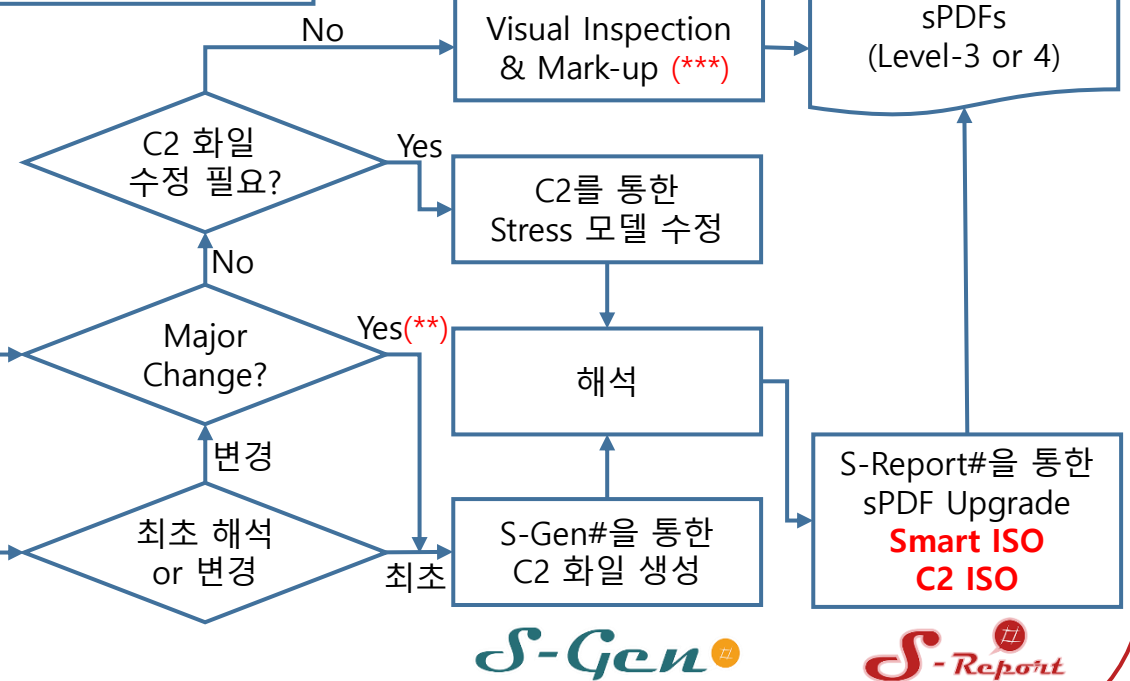


해석 결과 검토 및
3D CAD에 반영

End



Piping Stress



Tips!

(*) 대안으로 3DISO (*.pdf) + ISO 소스 화일인 (*.pcf 혹은 *.idf) 도 가능.

(**) Layout변경이 상당하여 기존 C2 화일을 Update하는 것이 효율적이지 않고, 3D ISO 소스의 확보가 가능한 경우 C2화일을 다시 생성한다.

(***) Digital Data의 손실을 막기 위해 Acrobat Standard나 Bluebeam을 활용한 Mark-up이 추천됨.