NOTICE

All drawings located at the end of the document.

Closure Description Document for

RCRA Closure of Tank and Ancillary Equipment System #21

in Building 771

U.S. Department of Energy
Rocky Flats Environmental Technology Site
EPA ID No. CO7890010526

Reviewed and Approved by:

T.C. Baker, Environmental Compliance, RMRS — Date: 12/13/99

Prepared by:

N.C.T. Van Tyne, P.E., Engineer/Scientist IV, IT Corp. — Date: 12/9/99

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By D.L. Mathusmeier, Classification Analyst
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1.0 INTRODUCTION

1.1 Purpose and Scope

The Rocky Flats Environmental Technology Site's (RFETS) RCRA Closure Plan for Interim Status Units (Closure Plan) includes the Mixed Residue tank systems and the Idle Equipment tanks in Building 771. Decommissioning and removal of tanks and their ancillary piping and other equipment are subject to the Closure Plan and a subsequent Closure Description Document, which contains a description of the method of closure to be used. A two-step strategy will be employed: (1) wherever possible, meet the requirements for the "RCRA Stable" condition while the tanks remain in place, and (2) remove the tanks from the building at a later date.

The process piping in Building 771 has been divided into thirty-eight discrete "piping systems," with tanks and other ancillary equipment included. Thirty-five of these systems contain process piping connected to RCRA-regulated tanks. In order to prepare for building deactivation and to facilitate closure activities, each tank will be isolated by removing the process piping connected to it. Some tanks are connected to more than one process piping system. Once a tank has been isolated from **all** process piping systems to which it has been connected, it will be reported in the closure documentation as "RCRA Stable" if the requirements for the "RCRA Stable" condition, as described in the Closure Plan, have been met.

This Closure Description Document applies to Tank and Ancillary Equipment System #21 in Building 771, also known as Piping System #21, 12N Nitric Acid. It applies to the closure of the tanks associated with this system, listed in Table 1 in Section 4.0. Closure of the tanks will be accomplished in two separate phases:

a. Phase I: Removal of the majority of ancillary process piping connected to these tanks and completing the isolation of the tanks and their associated ancillary equipment. Tanks meet the basic requirements for the "RCRA Stable" condition by being isolated as well as empty.

b. Phase II: Completion of RCRA closure of the tanks by removal of each isolated "RCRA Stable" tank, along with any remaining ancillary piping or isolated ancillary equipment.

1.2 Unit Closure Notification and Schedule

The Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division, is hereby notified of the Site's intent to close the tank and ancillary equipment system identified in Section 4.0. The identified closure activities are expected to be completed within 180 days. If closure activities cannot be

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completed within 180 days, a request for extension will be submitted to the Division at least 30 days prior to the end of the 180 days.

Phase I activities for all systems are expected to be scheduled during the August 24, 1998 to December 30, 2001 time period. Phase II activities will be scheduled through the Rocky Flats Cleanup Agreement (RFCA) annual budget planning and Integrated Sitewide Baseline process.

Within 30 days after completion of Phase I or Phase II closure activities, a report will be submitted to CDPHE briefly summarizing the closure activities conducted in accordance with this Closure Description Document. The Phase I summary report shall contain the following:

- a declaration that the piping described in the submitted drawings has been removed as planned;
- descriptions of any significant deviations from this Closure Description Document;
- a copy of any newly-generated drawings;
- a statement as to whether the tanks involved have met the requirements of the "RCRA Stable" condition; and
- a summary of relevant analytical results.

The summary report for Phase II activities shall contain the following:

- details about the removal of "RCRA Stable" tanks from Building 771; and
- for mixed residue tanks, a statement that the unit is now clean closed.

1.3 Facility Contacts

The contacts for closure activities at RFETS are:

Assistant Manager
For Environment and Infrastructure
Rocky Flats Field Office
U.S. Department of Energy
10808 Highway 93, Unit A
Golden, CO 80403-8200
(303) 966-4298

Division Manager
Environmental Systems
and Stewardship
Kaiser-Hill Company, L.L.C.
10808 Highway 93, Unit B
Golden, CO 80403-8200
(303) 966-9876

2.0 BUILDING 771 FACILITY DESCRIPTION

According to the *Building 771/774 Closure Project Decommissioning Operations Plan* (DOP) and its references, Building 771 was used for production activities involving

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plutonium and other actinides in a wide variety of processes between 1951 and 1989. During this time, there was considerable variation in the processes, as well as several upsets that resulted in radiological contamination of the facility.

The current scope of decommissioning activities under the DOP includes decontamination, stripout, removal, size reduction and packaging of process and utility equipment, such as gloveboxes, tanks, piping, etc., and demolition of internal non-load-bearing structures as necessary to facilitate these activities.

3.0 METHOD OF CLOSURE AND PERFORMANCE STANDARD

The tank systems described herein will be closed by the method described as "Unit Removal" in the Closure Plan for Interim Status Units, Section E, while incorporating the intermediate stage of "RCRA Stable," as described in Section F of the Closure Plan. All liquids will be drained from these tank systems, to the extent practicable, prior to the start of closure activities.

The Phase I performance standard for "RCRA Stable" shall be as follows:

a. The tanks are empty, i.e., they have been drained to the maximum extent possible using readily available means.
b. The piping sections shown in the figures have been removed.
c. Inlets to and outlets from the tank, except for the vacuum/vent line, have been isolated and contained, or locked and tagged out.

The Phase II performance standard is removal and waste packaging of the tanks and any remaining ancillary equipment.

4.0 UNIT DESCRIPTION AND WASTE CHARACTERIZATION

System #21 was a supply or reagent system for delivery of 12N Nitric acid solutions to numerous locations on the first floor of Building 771 involved in the plutonium dissolution processes. The piping is constructed from stainless steel. A narrative description of this system is given in the "System #21 Initial Characterization" (Attachment 1), Section K.

Equipment drawings are also attached as Figures 1-15. The piping has been divided into four subsystems to facilitate removal activities: #1 is shown in Figures 1 and 2, #2 is shown in Figures 1 and 3, #3 is shown in Figures 4-9, and #4 is shown in Figures 10-15. The total length of piping to be removed during Phase I is estimated to be 2,000 feet of ¼- through 1-inch diameter sizes. Seventy-two valves will also be removed. These valves contain steel housings and stainless steel interiors. Fifty-five termination points

(TPs) are shown in the applicable figures, and are labeled consecutively. Containment at the TPs will be designed and implemented to protect the room environment from release of contaminants remaining in disconnected systems. Significant changes to Figures 1-15 will be submitted to CDPHE with the Phase I summary report.

During Phase I closure activities, all solution fill, drain, and transfer lines indicated in Figures 1-15 will be disconnected and removed from the tanks. The vacuum/vent lines will be left in place during Phase I activities, with the valves in the vent position. At the completion of Phase I closure activities, tanks T-22, T-23 and T-24 are expected to meet the requirements of the "RCRA Stable" condition and this condition will be documented in accordance with the Closure Plan. The remaining tanks will not meet the requirements for the "RCRA Stable" condition until other piping systems have been removed.

Detailed information about the tanks in System #21 is given in Table 1 below:

Table 1: Tanks in System #21

Tank No.	Tank Type	MRT or IEI	Identifier	Diameter (in.)	Height (ft.)	EPA Codes
T-22	Non-RR	IEI	771-0005	12	1.08	D002
T-23	Non-RR	IEI	771-0002	62	4	D002
T-24	Non-RR	IEI	771-0001	53	5.8	D002
D-609	Pencil	MRT	None	5	18	D002, D008
D-610	Pencil	MRT	None	5	18	D002, D008
D-1083	RR	MRT	93.123	18	3.25	D002

As indicated in the table, EPA waste code D002 (corrosivity) is assigned to the liquids and removable sludges present in this system based on process knowledge. In addition, D008 (lead) is assigned to the contents of tanks D-609 and D-610. Code D001 (ignitable/ DOT oxidizer) does not apply, since the liquids contain a maximum of 50-55% nitrate, which is below the minimum concentration of 70% nitrate for applicability of code D001. There are no listed wastes present in this system, also based on process knowledge. If additional samples of liquids are recovered from piping during the Tap and Drain Project, they will be analyzed and their results will be used to re-characterize the residual liquids in this system. Successful removal of liquids and/or sludges from the piping will render it non-hazardous.

Little or no radioactive contamination is currently expected inside the piping for this system. Prevention of release and minimization of work exposure will be addressed in the preparation of the Integrated Work Control Program (IWCP) work package, as described below.

5.0 SPECIFIC CLOSURE ACTIVITIES

Activities will be designed to achieve the closure performance standard, protect human health and the environment, and minimize waste. Specific work instructions, with engineering, health and safety, and waste management information, will be developed prior to the start of identified Phase I or Phase II closure activities. These instructions will be developed in accordance with applicable RFETS policies and procedures.

Closure activities are summarized as follows:

5.1 Establishment of Tank System Boundaries and Scope of Removal for Phase I

The boundaries for System #21, as described in Attachment #1, define the extent of closure activities for this closure description document. The boundaries are at or near flanged joints. At TPs where release of contamination and worker exposure are of concern, a relatively short pipe stub may remain beyond the joint. The length of the pipe stub is dependent on field conditions. This type of TP will be sealed and therefore contained by two layers of plastic sleeving taped to the stub. It is anticipated that blind flanges will be used at TPs on the second floor and pipe stubs will be used at TPs on the first floor.

During Phase I closure activities, all overhead piping between the joints nearest the tank outlets and those nearest the points of entry into the gloveboxes, as indicated in Figures 1-15, will be removed, and the remaining piping capped as described above. The tanks themselves and all remaining ancillary piping and equipment (e.g., pumps, heat exchangers, actuators) are expected to be removed during Phase II closure activities. The tanks in System #21 are expected to be removed as part of D&D Sets 45 (D-1063), 10 (D-609 and D-610) and 56A (T-22, T-23 and T-24).

System #21 piping located inside gloveboxes will be removed when the glovebox is disassembled, to minimize worker exposure and cost. At that time, the waste will be characterized and managed accordingly.

5.2 Preparation of Engineering and IWCP Work Packages (Phases I and II)

A unit-specific IWCP/engineering work package will be prepared for System #21. The RFETS Health and Safety Practices Manual defines the general health and safety measures to be followed at the Site. Closure activities will be conducted in accordance with this manual, incorporating the results of job-specific industrial and nuclear safety-related evaluations and screens.

The IWCP/engineering work package will be used to control work, including preparation of equipment, specification of personal protective equipment, methods

of pipe removal and size reduction, methods for containing liquids and preventing releases to the environment, and waste packaging.

As Low As Reasonably Achievable (ALARA) principles will be followed regarding personnel exposures to radiation. Where necessary, radiological containment will be provided during pipe cutting activities by the use of soft-sided structures such as glovebags, sleeves and/or portable housing. Larger containments may be constructed for disassembly and size reduction of tanks and associated equipment. Following size reduction, equipment pieces will be inspected and placed into a waste container.

Air pressure inside of larger containment will be maintained negative to the room air through the use of a portable air mover or by connection to the building exhaust system. Each process room is maintained at negative pressure relative to the surrounding building or outside atmosphere by the building room exhaust system, which prevents the escape of radiological or hazardous substances to the environment. The exhaust from the air mover will pass through a filter, if necessary, to trap particulates.

5.3 General Methodology for Piping Removal during Phase I

Prior to starting Phase I pipe removal activities, individual subsystems will be vented, purged, drained and then drained again by tapping into low points, if required, until no additional liquid can be removed. That subsystem should then be free of liquids and piping removal may commence independently of the status of other subsystems. However, it is possible that residual liquids may be encountered during piping removal. Any two-phase liquids encountered at this point will be handled in the same manner as the staff chemist will determine during the sampling step of tap and drain activities. The removal method employed will include provisions to contain residual liquids and/or sludges, which may contain radioactive contamination. Any resulting liquids or sludges will be characterized and treated for final disposal per waste acceptance criteria.

If a blockage is encountered that cannot be cleared readily during the tap and drain process, additional taps will be installed to minimize the length of the blocked section. Blocked sections will be removed with provisions to contain trapped liquids that may be present. These sections will be size reduced in a manner that accommodates the possibility that trapped liquids may be released to containment. A drainage path will be established through any remaining blockages to ensure that all liquid can be drained from the section. If significant blockages are encountered during tap and drain activities, piping removal may be conducted in conjunction with those activities.

Piping removal, size reduction and packaging activities are considered to be dynamic processes, in which improvements in technology will be implemented as a result of newly available methods or lessons learned from prior piping removal operations. The piping removal steps described below may be modified in response to actual operating conditions. Possible modifications include the manner in which the pipe sections are separated, the type of containment used as a pipe section is removed, the manner in which vacuum is applied, and the type of containment used for size reduction.

In the majority of cases, piping will be removed in the following manner:

a. A glovebag or plastic sleeving will be installed around the section of piping to be removed.
b. Vacuum will be applied at one or both ends of a pipe section, and removal will proceed toward a vacuum source.
c. At a TP, the flange will be disconnected or the pipe cut and the remaining pipe stub will be contained by two layers of plastic.
d. The pipe sections will be separated by the best available method (e.g., disconnecting at the flanged joint, four-wheel cutter, pipe crimping tool).
e. After the pipe section ends are separated from the rest of the pipeline, the ends of the glovebag/sleeving will be twisted into a "pigtail" formation, from which the ends of the bag can be cut and taped. The pipe section can now be removed with taped plastic containment at both ends.
f. If any residual liquid or sludge is observed at either end of the removed pipe section, that section will be immediately bagged into the size reduction containment, to be size reduced and inspected. The recovered residual liquid and/or sludge will be collected, then stored in an approved RCRA storage area.
g. If no residual liquid or sludge is observed at either end of the pipe section, it will be brought to the size reduction area at an appropriate time.
h. Piping sections will be size reduced, as necessary, using an approved cutting method. Crimped pipe sections must be size reduced.
i. Pipe sections will be allowed to drain, in a vertical position, as required.
j. Pipe section ends will be inspected visually to determine whether a blockage is present within the section.
k. Blockages in pipe sections will be penetrated by mechanical means to drain any trapped liquid.
l. Pipe sections will be drained of any remaining liquids or sludges, then placed into waste containers. Residual materials will be sampled and immobilized.

The contents and condition of the interior of the pipe section will dictate its disposition as waste. Three typical cases may be encountered:

- The interior surface is dry and contains no visible sign of hazardous waste holdup, so that the pipe section can be disposed as non-hazardous waste.
- The pipe section contains solid residual material adhering to the interior walls, which cannot be removed readily. The pipe section will be managed as hazardous or non-hazardous waste, based on analytical results for a representative sample of the material.
- A removable blockage or mobile sludge is found, and is removed from the pipe section and sampled. EPA codes are assigned to the sludge based on process knowledge or analytical results, and the sludge is treated to meet applicable waste acceptance criteria. The pipe section will be disposed as hazardous or non-hazardous waste, after a hazardous waste determination has been made.

Each IWCP work package, which will be prepared prior to the start of closure activities, will include more specific and detailed instructions for the sequence of piping removal steps, removal and size reduction methodology, and removal of residual materials from pipe sections.

6.0 SAMPLING AND ANALYSIS

Sampling and analytical methods, and quality assurance standards, are addressed in this section.

6.1 Sampling Methods

Methods used to collect samples are authorized in 6 CCR 1007-3, Part 261, Appendix I, and the Liquid Residue Treatment Waste Characterization Plan for Process Piping Removal. Specific methods will be selected on the basis of ease with which representative samples can be collected, sampling location, sampling matrix, sample container type and size, and accessibility, as well as to maximize the value of data and minimize the number of samples needed.

Sampling of liquids is performed using the procedure entitled, Solution Bottle Handling Building 771, PRO-D02-CO-1131. The solution is mixed while in a bottle to assure homogeneity prior to sampling. Solid material sampling is performed using the procedure entitled, Laboratory Sampling Procedure, CAS-SOP-003.

6.2 Analytical Methods and Location

Analytical work will be performed in an RFETS approved laboratory. The analytical test methods for waste characterization are consistent with the approved methods in the Site RCRA Part B Permit, Part VI, Waste Analysis Plan.

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6.3 Quality Assurance

The applicable RFETS Field Operating Procedure, 5-21-000-OPS-FO, or equivalent procedure(s), will be used to ensure the integrity of representative samples and analytical data.

7.0 DISPOSITION OF CLOSURE-RELATED WASTES

Metal, combustible and liquid/sludge wastes may be generated during either Phase I or Phase II closure activities. It is assumed that the Site waste management and treatment systems will be available to receive wastes generated by these closure activities.

Tank system components and pieces which are radioactively contaminated will be managed in accordance with the requirements of the RFETS Radiological Control Manual and Health and Safety Practices Manual, and will be packaged for disposal in accordance with applicable waste acceptance criteria. All metal waste from this system is expected to be either low level waste (LLW) or transuranic waste (TRU), depending on the amount of actinide present, and will be characterized in accordance with applicable regulations. Tank system components and pieces completely free of any holdup will be managed as non-hazardous waste, because there were no listed wastes in this system, and their materials of construction do not exhibit any characteristics of a hazardous waste. If the metal waste is determined to be hazardous debris, then an approved extraction technology may be implemented; however, hazardous debris is not expected for System #21.

Wipes and other combustible materials that are used to clean surfaces or to immobilize free liquids will be placed into waste drums, characterized and managed in accordance with applicable regulations. Other combustible wastes, including PPE and plastic containment void of any hazardous constituents, will be managed as non-hazardous radioactive waste. All waste drums will be analyzed by non-destructive assay to categorize them as LLW or TRU and they will be stored in an appropriate onsite storage area prior to offsite disposal.

The only liquids expected to be generated during Phase I or Phase II closure activities are the residual liquid holdup in the equipment. Liquid inventory in the tanks or ancillary equipment, except for incidental amounts that may be absorbed onto wipes, will be drained into 4-liter bottles until analytical results are available. The bottles would be placed into permitted or otherwise compliant storage areas and managed in accordance with applicable regulations. Final characterization of the liquids will be based on analytical results. The contents of the bottles may be transferred to process waste tank D-544 (for acids), depending on analytical results. Liquids in bottles destined for the Miscellaneous Cementation treatment process or the Aqueous Waste Treatment process will be sampled and analyzed for final characterization prior to transfer.

Any mobile sludge found in components during closure activities will be removed or immobilized in situ prior to packaging for disposal, in accordance with applicable waste acceptance criteria. If process knowledge is not adequate, then sampling of the sludge will be necessary to characterize it properly. System components containing solidified sludge that adheres to the interior walls will be characterized using analytical results for a representative sample of the sludge, and managed in accordance with applicable regulations. The sampling protocol and number of sampling locations will be determined if solid residual material actually is encountered, and will be based on the Waste Characterization Plan.

8.0 SOIL CONTAMINATION EVALUATION AND POST CLOSURE CARE

The operating history for these tank systems (e.g., building logs, RCRA inspection logs and occurrence reports) indicates that there have been no spills or releases to the environment as a result of waste management activities in these units. Phase I and Phase II closure activities associated with these tank systems are not expected to impact the soils surrounding Building 771. Therefore, soil contamination will be evaluated as part of decommissioning and cleanup activities for the Building 771 complex under RFCA, and post-closure care activities are not necessary as part of the closure of these tank systems.

9.0 RECORDKEEPING

The following closure records will be maintained onsite during closure activities, and at a federal repository for a minimum of 30 years following the completion of closure activities:

- sampling logs, including type, numbers and date of samples;
- analytical results;
- records of actions taken to decontaminate equipment and/or structures;
- work instructions used to conduct closure activities;
- closure report for Phase I activities; and
- documentation verifying that closure activities were conducted in accordance with the approved Closure Plan and with this Closure Description Document, following completion of Phase II activities.

10.0 AMENDMENT OF THE CLOSURE DESCRIPTION DOCUMENT

In conducting Phase I or Phase II closure activities, unexpected events that are identified during the implementation of closure activities may require an amendment to this Closure Description Document. Modifications to this Closure Description Document will be made in accordance with applicable regulations.

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During the planning and development stage of Phase II closure activities, additional drawings that are developed for the removal of tanks and remaining ancillary equipment will be submitted as an addendum to this Closure Description Document. This Closure Description Document may be augmented or superceded by an approved Building 771 Decommissioning Operations Plan (DOP).

11.0 REFERENCES

1. Code of Colorado Regulations, Vol. 6, No. 1007-3, Part 265, Subpart G, Sections 265.110 through 265.120.
2. Rocky Flats Environmental Technology Site RCRA Permit, Part X: Closure Plan, effective 5/10/98.
3. Rocky Flats Environmental Technology Site Closure Plan for Interim Status Units, effective 7/98.
4. Rocky Flats Environmental Technology Site 1997 Hazardous Waste Tank Systems Management Plan, effective 2/13/98.
5. Backlog Waste Reassessment Baseline Book, an RFETS Level 1 Manual, effective 2/17/98.
6. Building 771 Basis for Operation (BFO), 98-RF-00947, effective 2/27/98.
7. Building 771 Liquids Process Piping Removal Waste Characterization Plan, Rev. 0, 12/3/98.

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Attachment #1 : System Description and Boundaries for System #21

BUILDING 771TAP & DRAIN/PROCESS PIPING REMOVAL CHARACTERIZATION SHEET

SYSTEM NUMBER	NAME	ENGINEER	REVISION DATE
21	12N NITRIC ACID	GREG VINCENT	06/03/99

A. START POINT

Outside Building 771 (Southeast corner of building), Valve HV-343

B. END POINT

Rooms 247, 114, 114A, 146, 149, 153, 174, 180A, 180D, 180E, 180F, and 180K

C. CHEMICAL COMPOSITION

12N Nitric Acid

D. RAD/ACTINIDE CONTAMINATION

$< 10^{-3}$g/l Pu/U

E. ESTIMATED SYSTEM MAX VOLUME

246 Liters

F. TANKS INVOLVED

Room 247 - T-22 (siphon tank), T-23, T-24 (Non-Raschig Ring-filled Tanks)
Room 114 - D-609, D-610 (Pencil Tanks)
Room 174 - D-1083 (Raschig Ring-filled Tank)

G. GLOVEBOXES INVOLVED

Room 114 - Lines 1, 2, 3, 5, 11, 13, 14 (new, 15, 16A
Room 146 - Lines MT-1, MT-2, MT-3, MT-4, MT-7
Room 149 - Lines 23, 24, 25, 42
Room 153 - Lines 153B, 153C
Room 174 - Line A4
Room 180A - Lines A10, A20, A32
Room 180D - Line D2
Room 180E - Line E10
Room 180F - Line F70A
Room 180K - Line K20

NOTE: The terms "Glovebox" and "Line" are interchangeable in this document

H. OTHER COMPONENTS

Southeast corner of building (outside) - dumpster hookup

I. SYSTEM INTERFACES

System 6 - Room 114, Lines 11, 13, 14 (new), 15, 16A
System 7 - Room 114, Line 3, 24
System 9 - Room 146, Lines MT-1, MT-2, MT-3, MT-4, MT-7
System 10 - Room 174, Line A-4, Tank 1083
System 11 - Room 149, Line 42
System 12 - Room 114, Lines 1 (north)
System 13 - Room 149, Lines 23, 24, 25
System 16 - Room 114, Line 5, Tanks 609, 610
System 17 - Room 180A, Lines A-10, A-20, A-32
Room 180D, Line D-2
Room 180E, Line E-10
Room 180F, Line F-70A
Room 180K, Line K-20
System 18 - Room 153, Lines 153B, 153C

K. NARRATIVE DESCRIPTION (continued)

Piping to be VP/TD

Subsystem 1
Piping/tubing from valve HV-343, outside the building, to the top of Tank T-22, in Room 247. (Drawings -01 and -02)

NOTE: A section of piping outside the building goes underground and will not be removed as part of this evolution

Piping from the bottom of Tank T-22 to the top of Tanks T-23 and T-24 (Drawing -01)

NOTE: Tank T-22 and the associated sight glass (Valves HV-2384 and HV-2385) will be removed as part of this evolution due to the fact that the piping is the support for this tank

Piping from the vent lines (2), on the top of Tank T-22, to the associated unions

Subsystem 2
Room 247
Piping from the bottom of Tank T-23 to the first "T" (Drawing -01)

Piping from the "T" near Valve HV-2404 to Valve HV-330 to (Drawing -01)

Room 146
Piping from Valve HV-330 in Room 247 to GB MT-1, GB MT-2, GB MT-3, GB MT-4, and GB MT-7 (Drawings -03 and -01)

Subsystem 3
Room 247
Piping from Valve HV-2404 to the floor penetration at the northwest pipe chase (Drawing -01)

Room 149
Piping from Valve HV-167 to Lines 23 and 24 (Drawing -04)

Piping from the north wall penetration into Room 114 to Valve HV-64 (Drawing -04)

Piping from Valves HV-64, HV-167 and the floor penetration from the northwest pipe chase in Room 247 to Valve HV-384 (Drawing -04)

Piping from Valves HV-384, HV-382, and HV-269 to Lines 25 and 42. Also included is the dead leg piping extending south of Valve HV-435 (Drawings -04, -05 and -06)

Piping from HV-269 to the west wall penetration in Room 149 (Drawing -05)

Rooms 149, 172, 174, and Corridor A
Piping from the "T" at Valve HV-240 to Tank D1083 (Drawing -07)

Piping from Valve HV-223 to Line A-4 (Drawing -07)

Piping from the west wall penetration in Room 149 to the west wall penetration in Room 172 (Drawing -07)

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I. SYSTEM INTERFACES (continued

System 19 - Room 247, Tank T-24, .35N HNO_3
Room 114, Tanks D-609, D-610
System 20 - Room 247, Tanks T-20, T-28, 7N HNO_3
Room 114 - Lines 2, 5

J. CHEMICAL COMPATIBILITY AT INTERFACE(S)

Avoid mixing concentrated Nitric acid with bases, Hydrogen peroxide, TBP/Dodecane, and Freon.

K. NARRATIVE DESCRIPTION

12N Nitric acid is a reagent that was primarily used to dissolve plutonium compounds in the Dissolution Operations, and to adjust the normality of plutonium solutions prior to further processing.

Tank T-22 was a siphon tank used to start the flow of Nitric acid from a Nitric acid dumpster located outside of Building 771 at the southeast corner.

Vacuum was supplied to Tank T-22 from a vacuum pump located in the southeast corner of Room 247 to start the flow. When Tank T-22 began to fill a valve was opened, allowing the acid to fill Tank T-23 located directly below Tank T-22.

12N Nitric acid was used to batch .35N Nitric acid in Tank T-24 located in Room 247 and to batch 7N Nitric acid in Tanks T-20 and T-28 also located in Room 247.

There are approximately 2,000 linear feet of ¼- through 1-inch diameter piping involved in this system.

NOTES:

12N Nitric acid was gravity drained from Room 247 to the process areas. Although Room 247 had its own vacuum system, this system will not be used to transfer solution. An approved vacuum source on the first floor may be used to remove solution for this evolution.

Solutions may be gravity drained or may be vacuum assisted during this activity.

Vent/Purge & Tap/Drain Recommendations (VP/TD)

Tap points and the final sequence of steps may differ from this description, and may not be determined until the latter stages of Enhanced Work Planning (EWP).

All drawings referenced in this description are 29203 Series unless stated otherwise.

Piping should be VP/TD from the highest to the lowest points where possible.

If a drain point is identified in a room, it is recommended that the vacuum source be located inside a glovebox until such time that liquid sample and/or radiological survey results identify that there are no radiological concerns.

VP/TD will be performed using the Subsystem Method. System 21 is large enough that the piping systems will be broken down into smaller, more manageable subsystems.

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K. NARRATIVE DESCRIPTION (continued)

Rooms 180E, 180F, and 180K
Piping from Valve HV-2330 to Line E-10 (Drawing -08)

Piping from Valve HV-2332 to Line K-20 (Drawing -08)

Piping from the west wall penetration in Room 172 to the "T" near Valve HV-2330 (Drawing -08)

Piping from HV-2330, HV-2332, and Valve HV-2335 to Line F-70A (Drawing -08)

Rooms 180K, 180L, 180D, and 180A
Piping from Valve HV-2332 in Room 180K and Valve HV-2345 to Line D-2 (Drawing -08 and -09)

Piping from Valve HV-2345 and Valve HV-2346 to Lines A-10, A-20, and A-32 (Drawing -09)

NOTE: The flow meter in Line A-20 will be disconnected to access the pipe

Subsystem 4
Room 114
Piping from the wall penetration in Room 149 to the "T" just inside Room 114 near the south wall (Drawing -10)

Piping from Valve HV-65 to east end of Line 5 and Tanks D-609 and D-610 (Drawing -10)

Piping from Valve HV-124 to Lines 11 and 14 (Drawing -11)

Piping from Valve HV-141 to the south end of Line 15 (Drawing -11)

Piping from Valve HV-1745 to Line 16A (Drawing -11)

Piping from Valve HV-144 to north end of Line 15 (Drawing -11)

Piping from Valves HV-1745, HV-144, and HV-141 to the "T" just north of Valve HV-65 (Drawings -10 and -11)

Piping from the "T" located along the south wall of Room 114 (above the east 114/149 door), Valves HV-65, and HV-124 to Line 13 (Drawing -10)

Piping from Valves HV-63 and HV-162 (against the wall in Room 114A) to the south/center of Line 5 (Drawings -10 and -12)

Piping from Valve HV-4156 to 3 penetrations into Line 1 (HV-4157, HV-4158, HV-4159) (Drawing -14)

Piping from Valves HV-4156 and HV-2380 to Line 3 (north) (Drawing -14)

Piping from the "T" south of Valve HV-2381 and Valve HV-2380 to Line 3 (north/center) (Drawings -13 and -14)

Piping from Valve HV-26 to Line 3 south and south/center (Drawing -13)

K. NARRATIVE DESCRIPTION (continued)

Piping from Valve HV-26, HV-992, and the "T" located along the south wall of Room 114 (above the east 114/149 door) to Line 2 (Drawings -10 and -14)

Room 114, Corridor A, Corridor D, Room 153
Piping from Valve HV-992 to Lines GB-153B and GB-153C (Drawing -15)

L. PIPING REMOVAL DESCRIPTION

Piping may be removed in the same order as listed in the narrative, with the understanding that the EWP process may change the sequence of steps. Piping removal techniques have been discussed with the Pipefitters, with emphasis on the difficulty expected in removing pipe in the overhead.

Piping in corridors will be drained but may remain in place due to inaccessibility. If left, the piping will be labeled as drained and will be removed during the D&D Process.

Craft knowledge gained from the removal of piping in other systems should be applied to the removal of this piping.

Piping to be removed is shown on Drawings 29203-X01 through -X15

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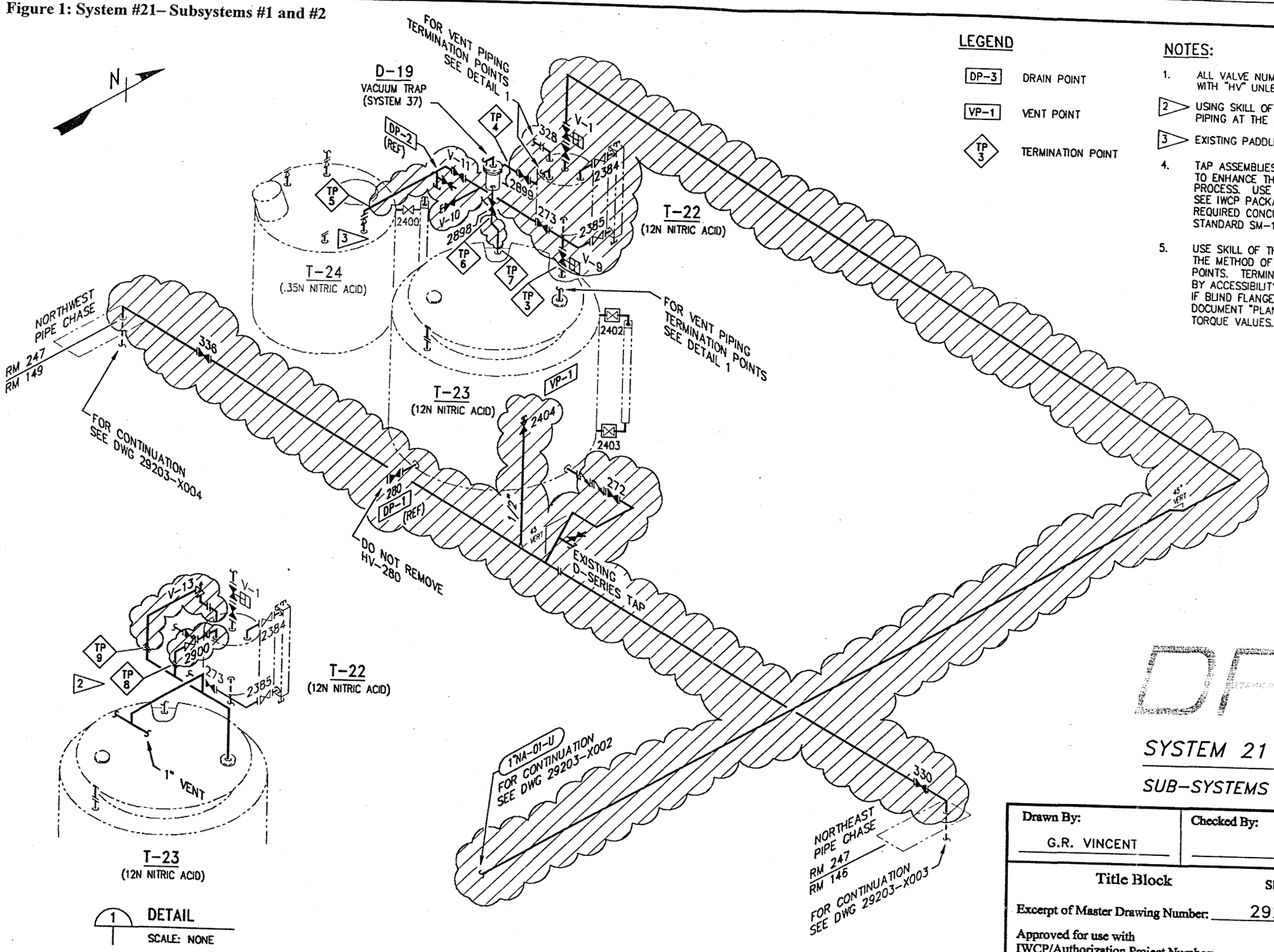
Figure 1: System #21– Subsystems #1 and #2



LEGEND

DP-3	DRAIN POINT
VP-1	VENT POINT
TP 3	TERMINATION POINT

NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USING SKILL OF THE WORKER PRACTICES, CAP VENT PIPING AT THE EXISTING UNIONS (TP-8 AND TP-9).
3. EXISTING PADDLE BLIND. (REF. T0098122)
4. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE VENTING OR PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.
5. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.

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SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEMS 1 & 2 (ROOM 247)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X01

Title Block Sheet 16 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

Approved for use with IWCP/Authorization Project Number: T0100274

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AutoCAD File: X12N247

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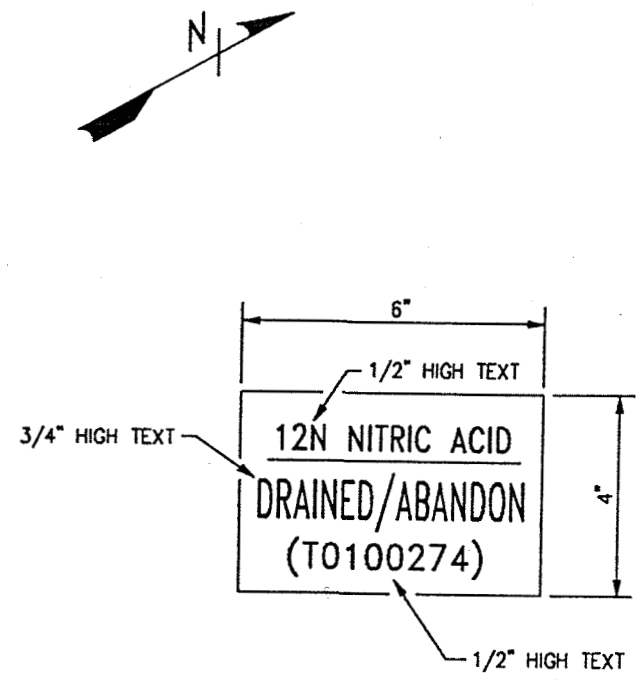
Figure 2: System #21 – Subsystem #1



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.
3. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.

LEGEND

TP 3 — TERMINATION POINT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 1

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X02

Title Block — Sheet 17 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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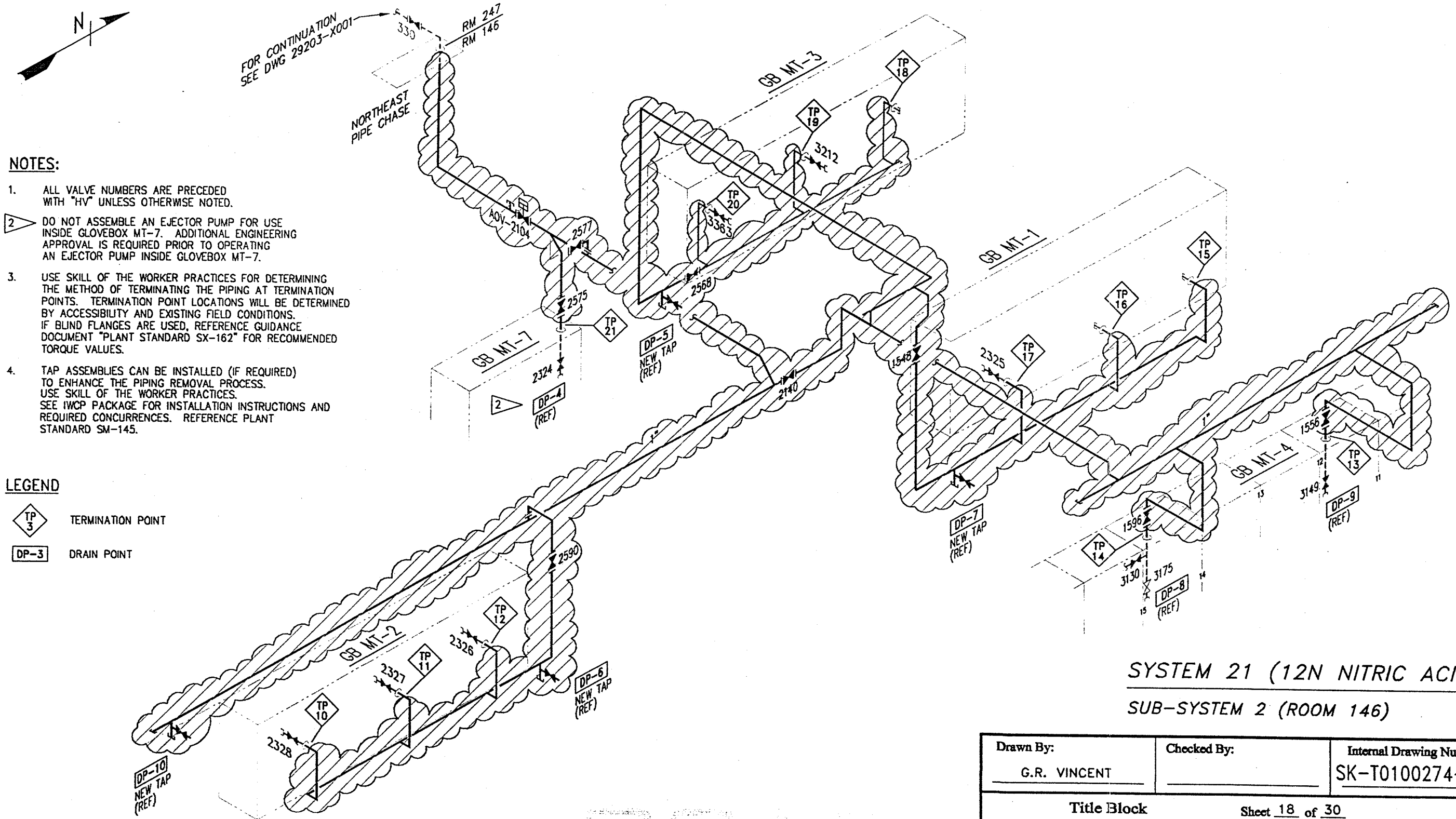
AutoCAD File: X12NFILL

Figure 3: System # 21– Subsystem #2



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. DO NOT ASSEMBLE AN EJECTOR PUMP FOR USE INSIDE GLOVEBOX MT-7. ADDITIONAL ENGINEERING APPROVAL IS REQUIRED PRIOR TO OPERATING AN EJECTOR PUMP INSIDE GLOVEBOX MT-7.
3. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
4. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

- TP 3 — TERMINATION POINT
- DP-3 — DRAIN POINT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 2 (ROOM 146)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X03

Title Block — Sheet 18 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N146

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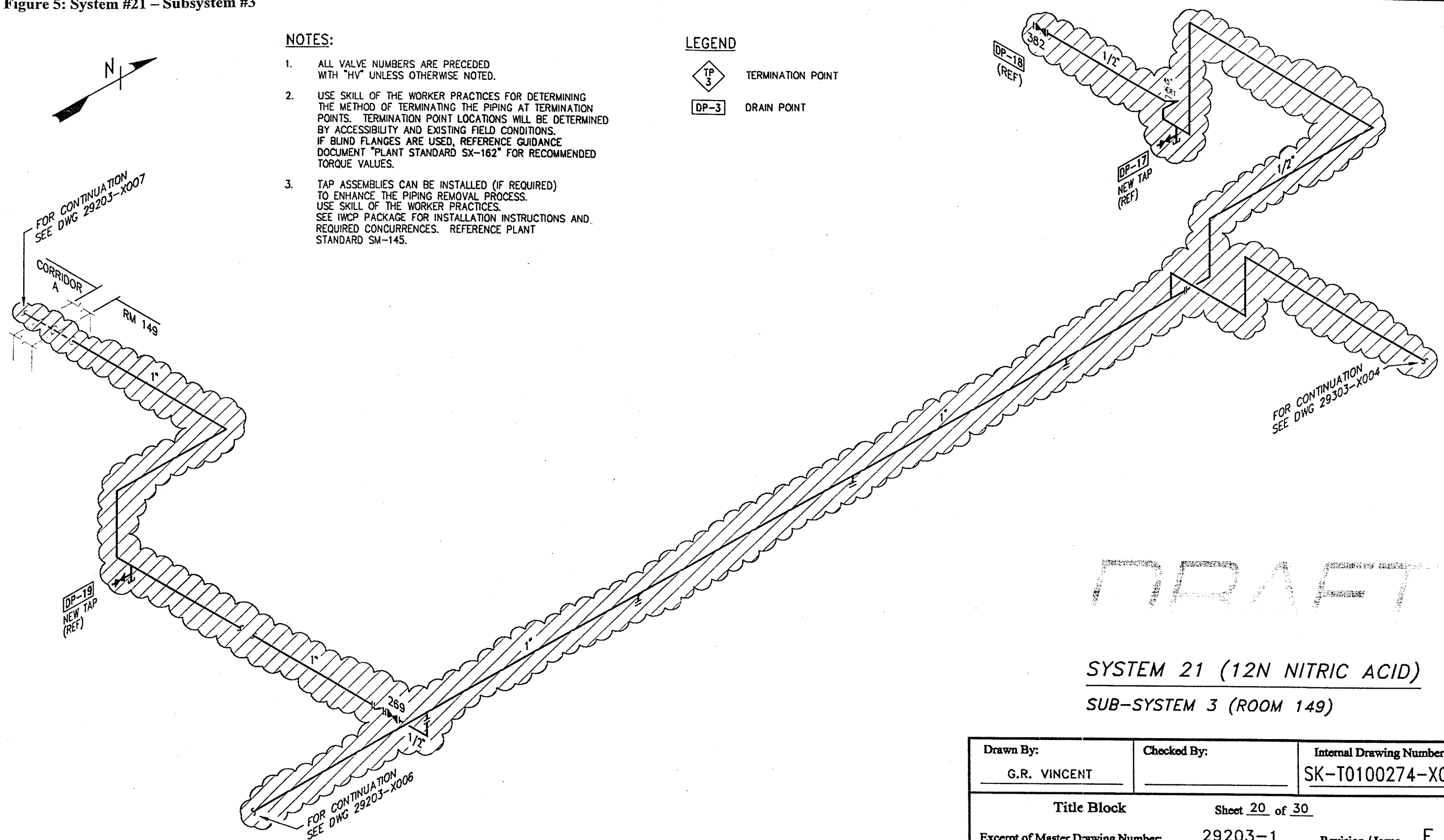
Figure 5: System #21 – Subsystem #3



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SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 3 (ROOM 149)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X05

Title Block Sheet 20 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N149-2

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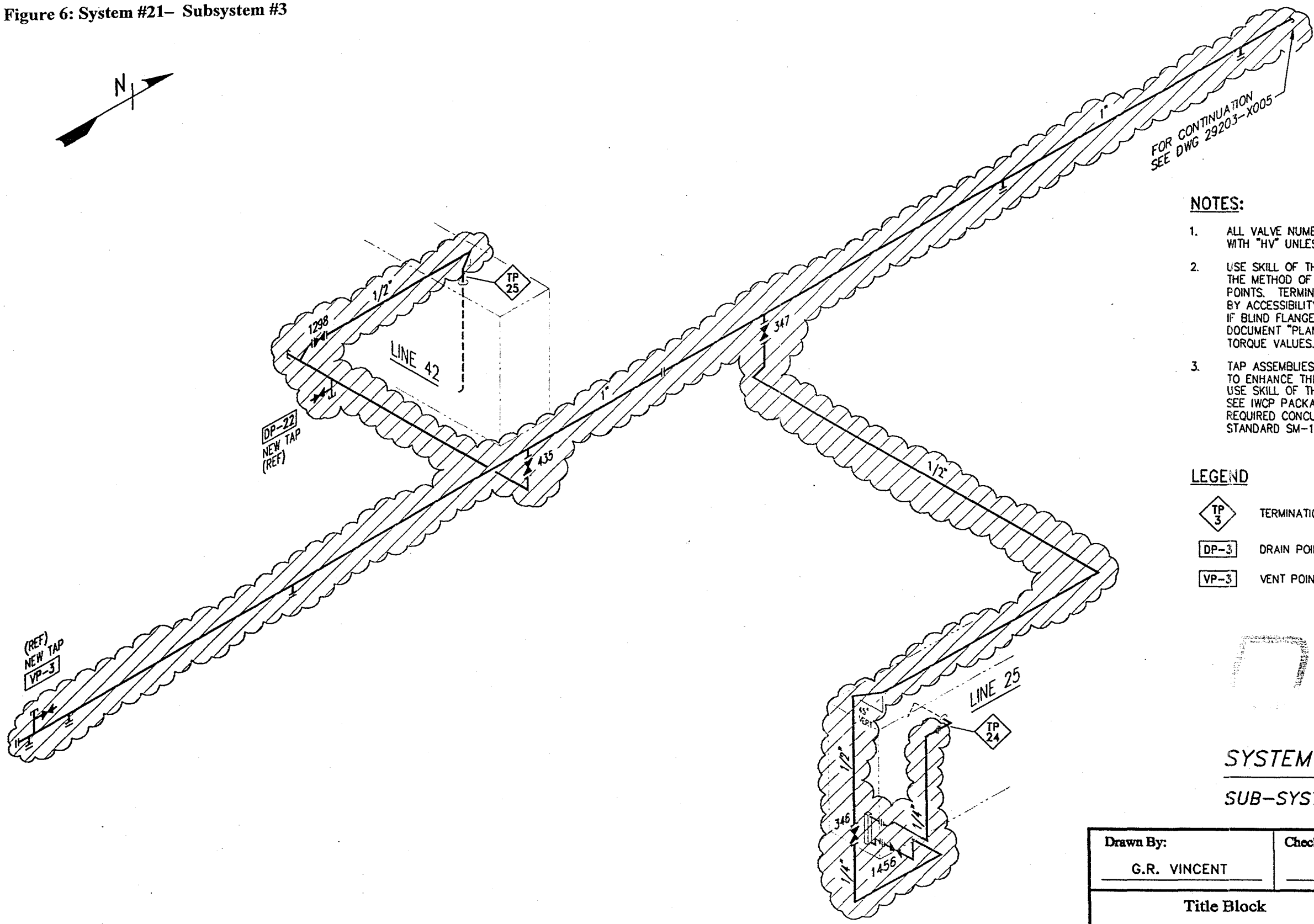
Figure 6: System #21– Subsystem #3



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

- TP 3 — TERMINATION POINT
- DP-3 — DRAIN POINT
- VP-3 — VENT POINT

DRAFT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 3 (ROOM 149)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X06

Title Block Sheet 21 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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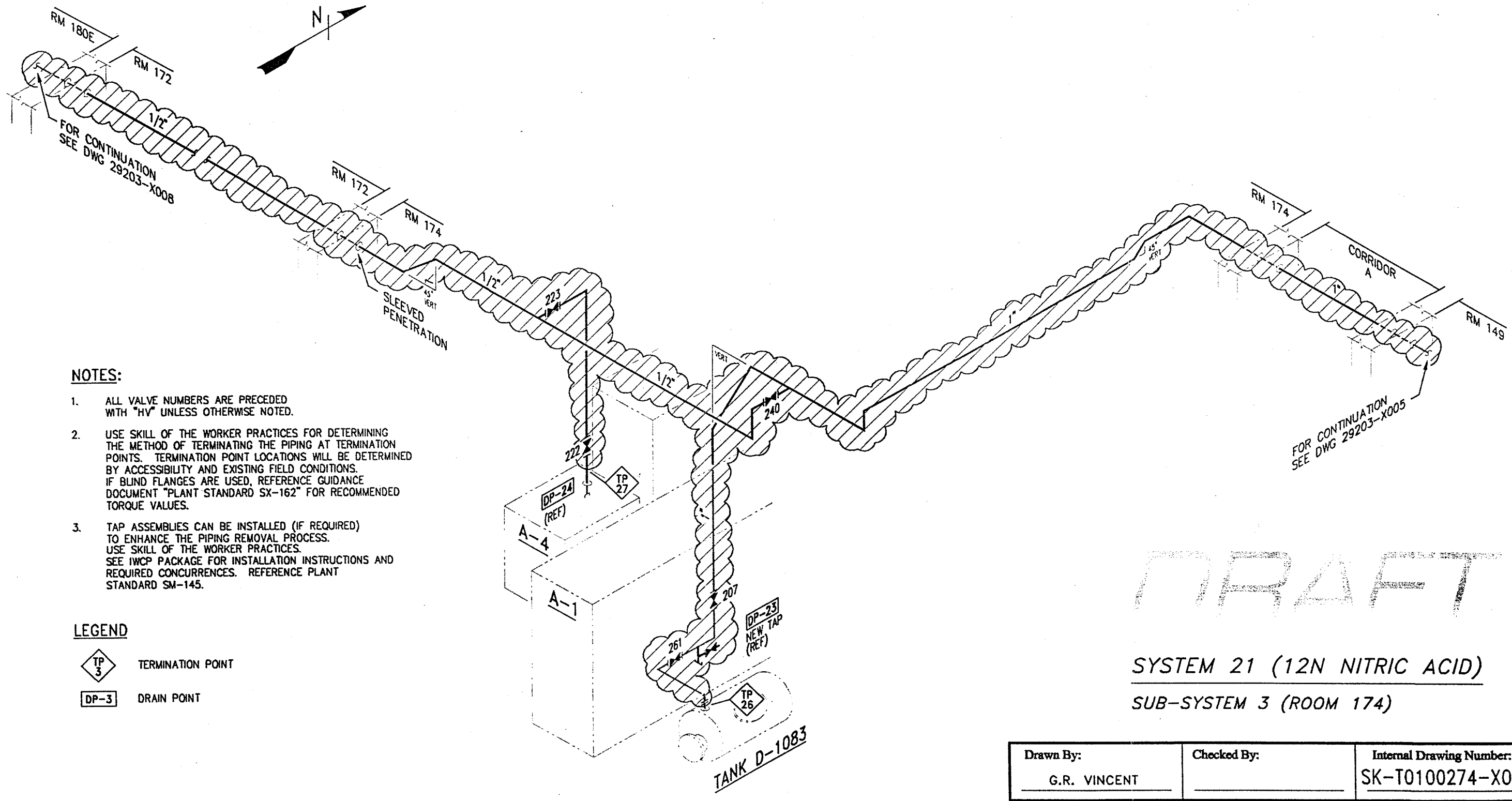
AutoCAD File: X12N149-3

Figure 7: System #21 – Subsystem #3



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT

DRAFT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 3 (ROOM 174)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X07

Title Block — Sheet 22 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

Approved for use with IWCP/Authorization Project Number: T0100274

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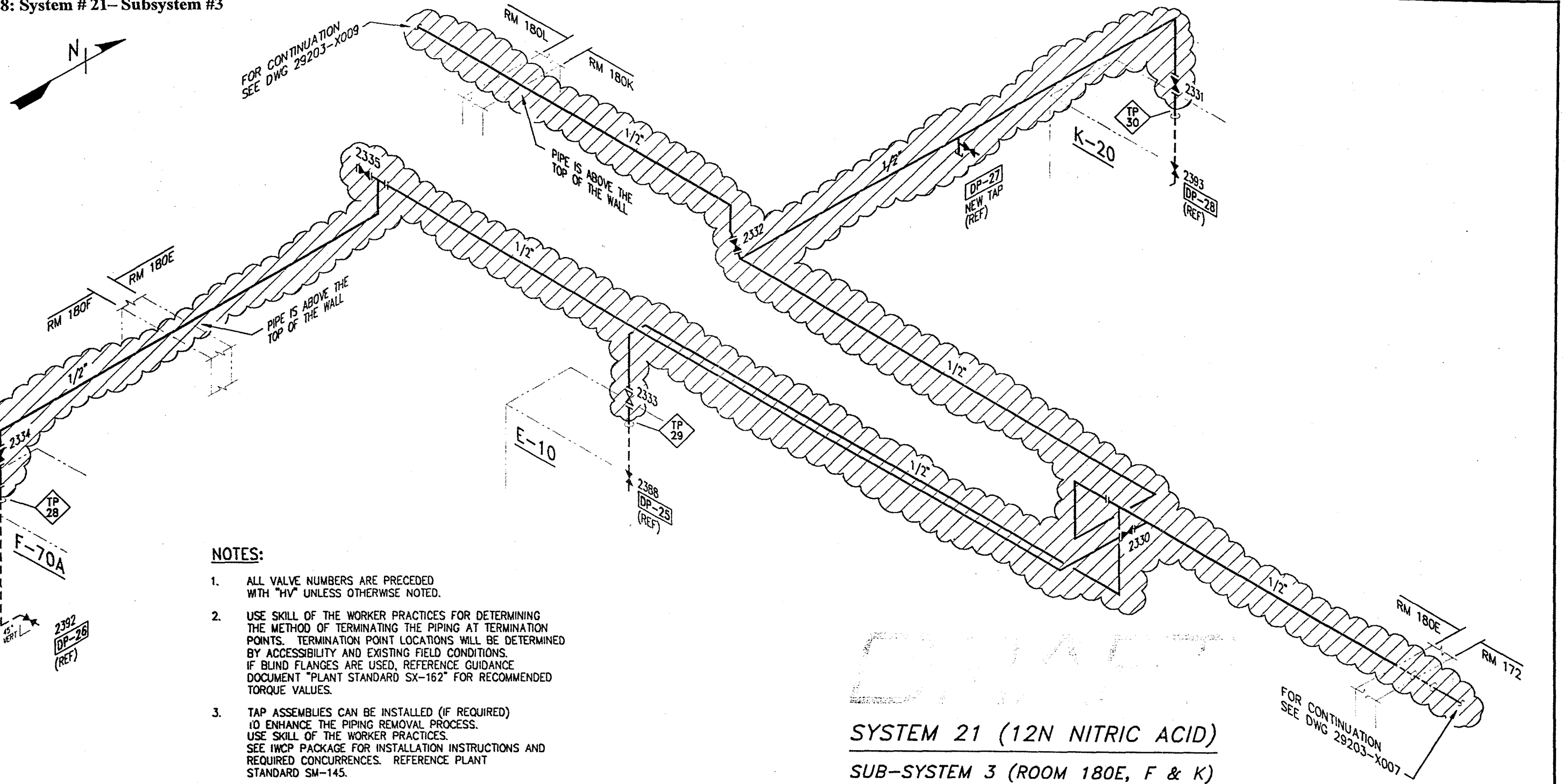
AutoCAD File: X12N174

24

Figure 8: System # 21– Subsystem #3



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 3 (ROOM 180E, F & K)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X08

Title Block — Sheet 23 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N180E

Figure 9: Systems #21 – Subsystem #3

NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 3 (ROOM 180A & D)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X09

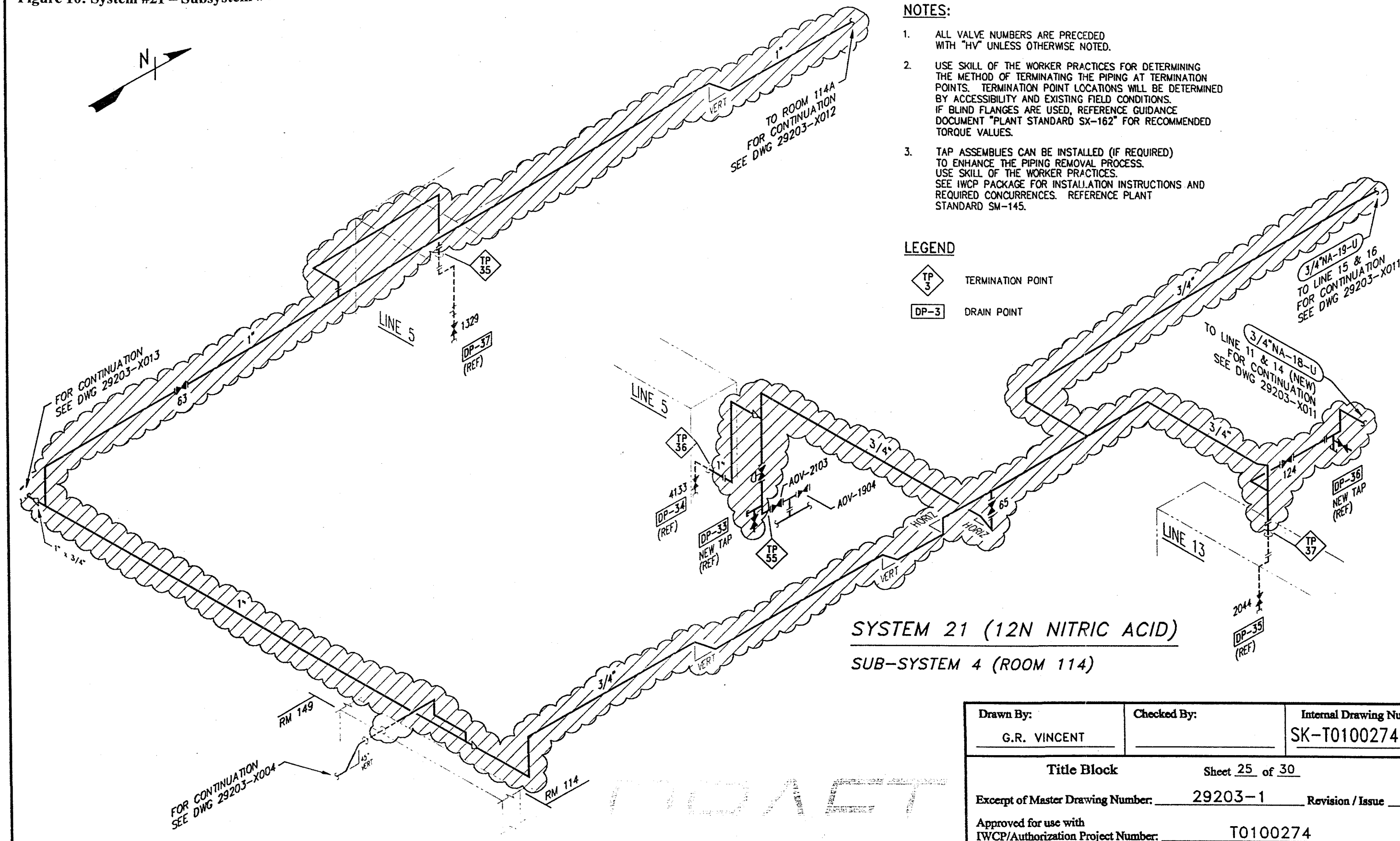
Title Block — Sheet 24 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

Approved for use with IWCP/Authorization Project Number: T0100274

Note: All approval and classification signatures are submitted with the Engineering Order form.

Figure 10: System #21 – Subsystem #4



Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X10

Title Block Sheet 25 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N114-1

Figure 11: System #21 – Subsystem #4

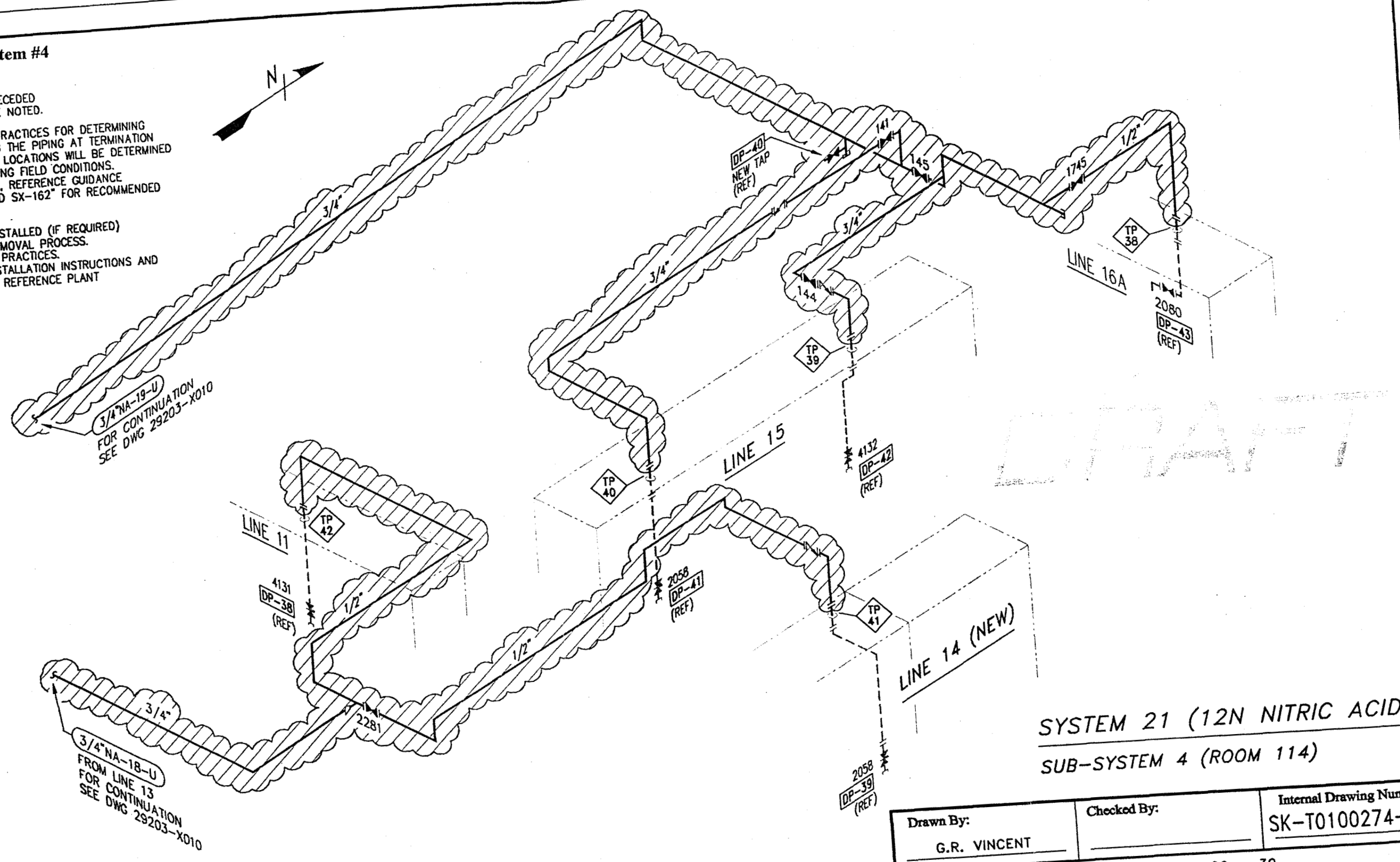
NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT



SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 4 (ROOM 114)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X11

Title Block — Sheet 26 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

Approved for use with IWCP/Authorization Project Number: T0100274

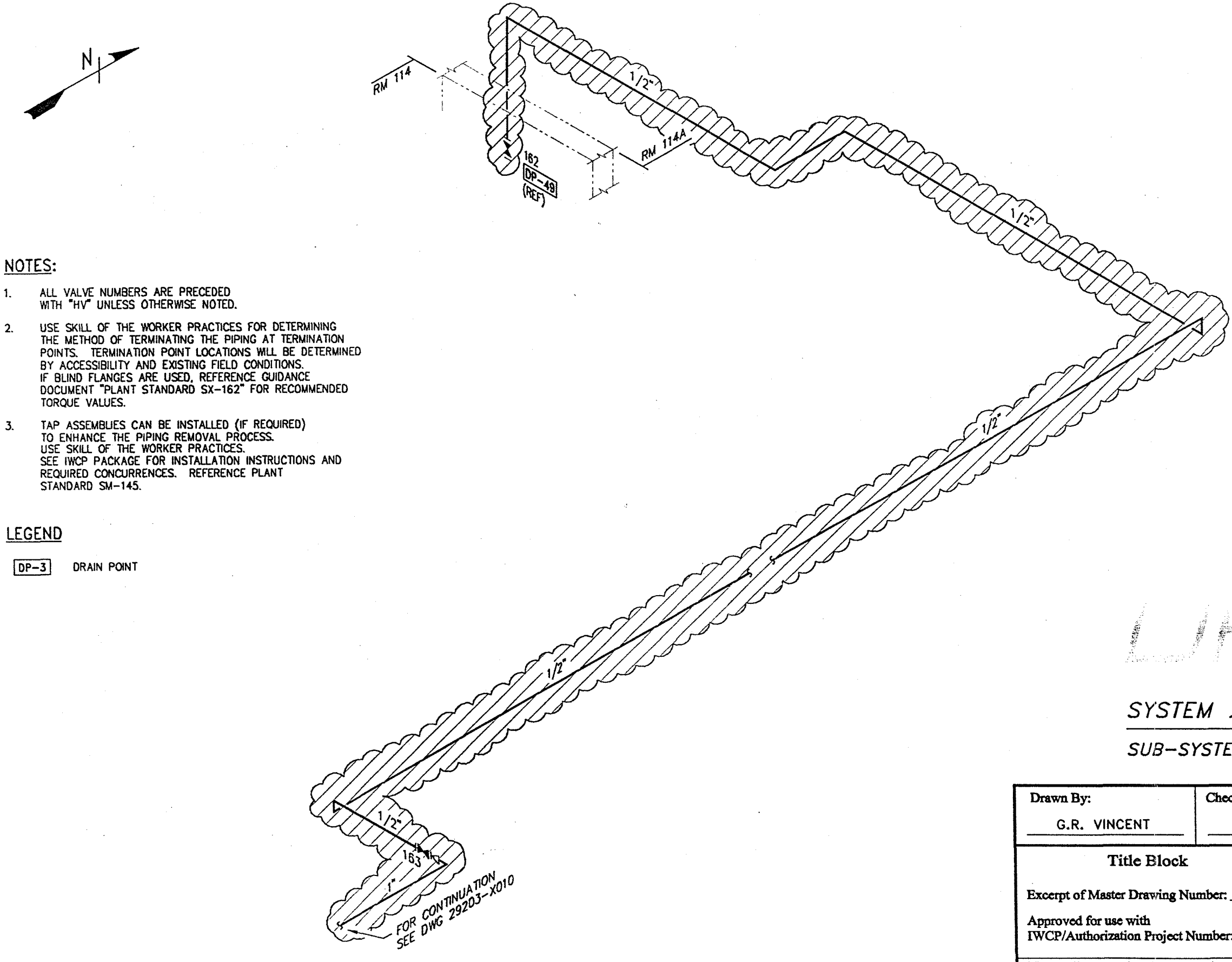
Note: All approval and classification signatures are submitted with the Engineering Order form.

AutoCAD File: X12N114-2

11/10/99

28

Figure 12: System #21 – Subsystem #4



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

DP-3 DRAIN POINT

UNAFI

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 4 (ROOM 114 & 114A)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X12

Title Block Sheet 27 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N114A

29

Figure 13: System #21– Subsystem #4

N

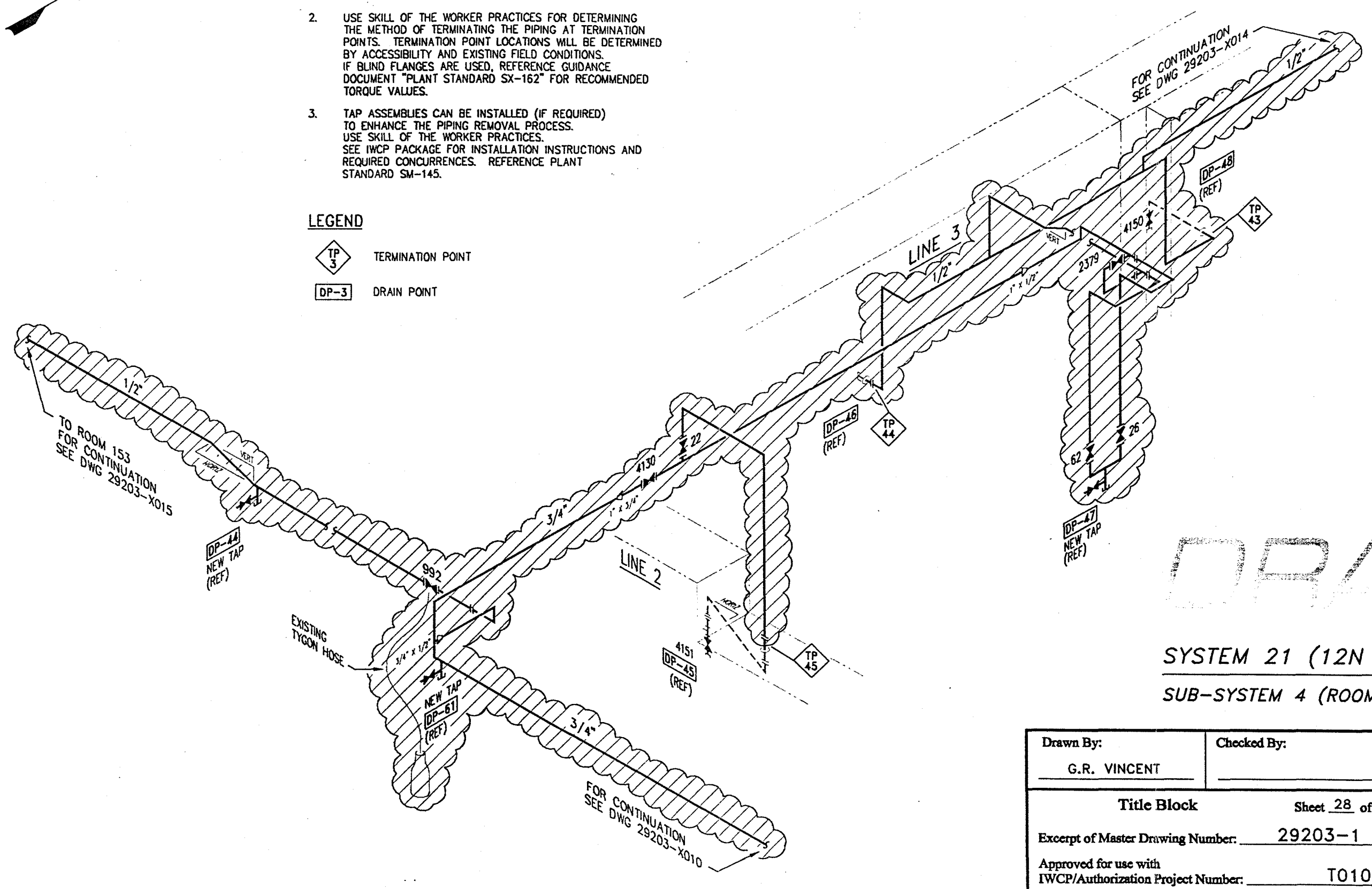
NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT



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SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 4 (ROOM 114)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X13

Title Block Sheet 28 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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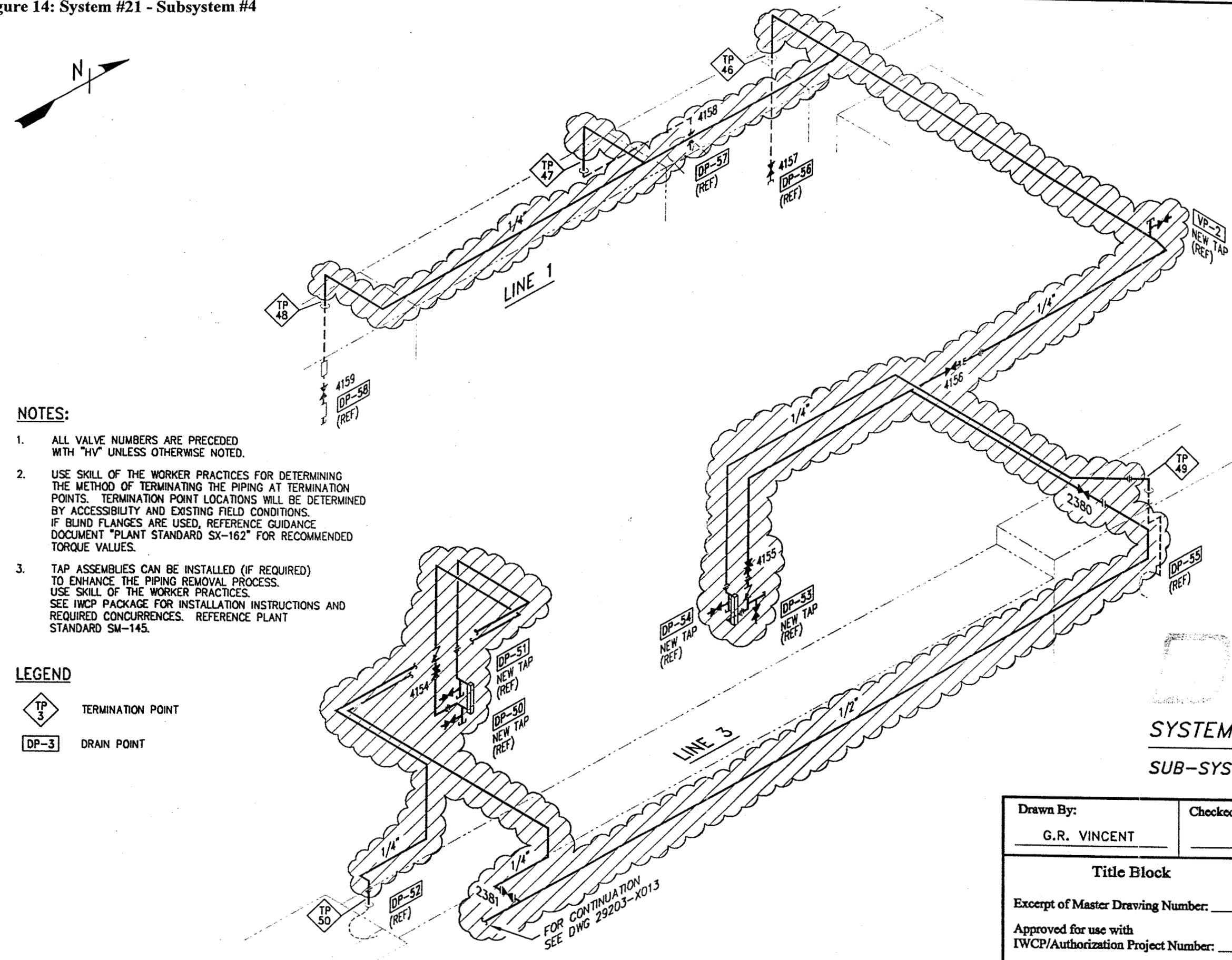
AutoCAD File: X12N114-3

Figure 14: System #21 - Subsystem #4



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

LEGEND

TP 3 — TERMINATION POINT

DP-3 — DRAIN POINT

DRAFT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 4 (ROOM 114)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X14

Title Block — Sheet 29 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

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AutoCAD File: X12N149-4

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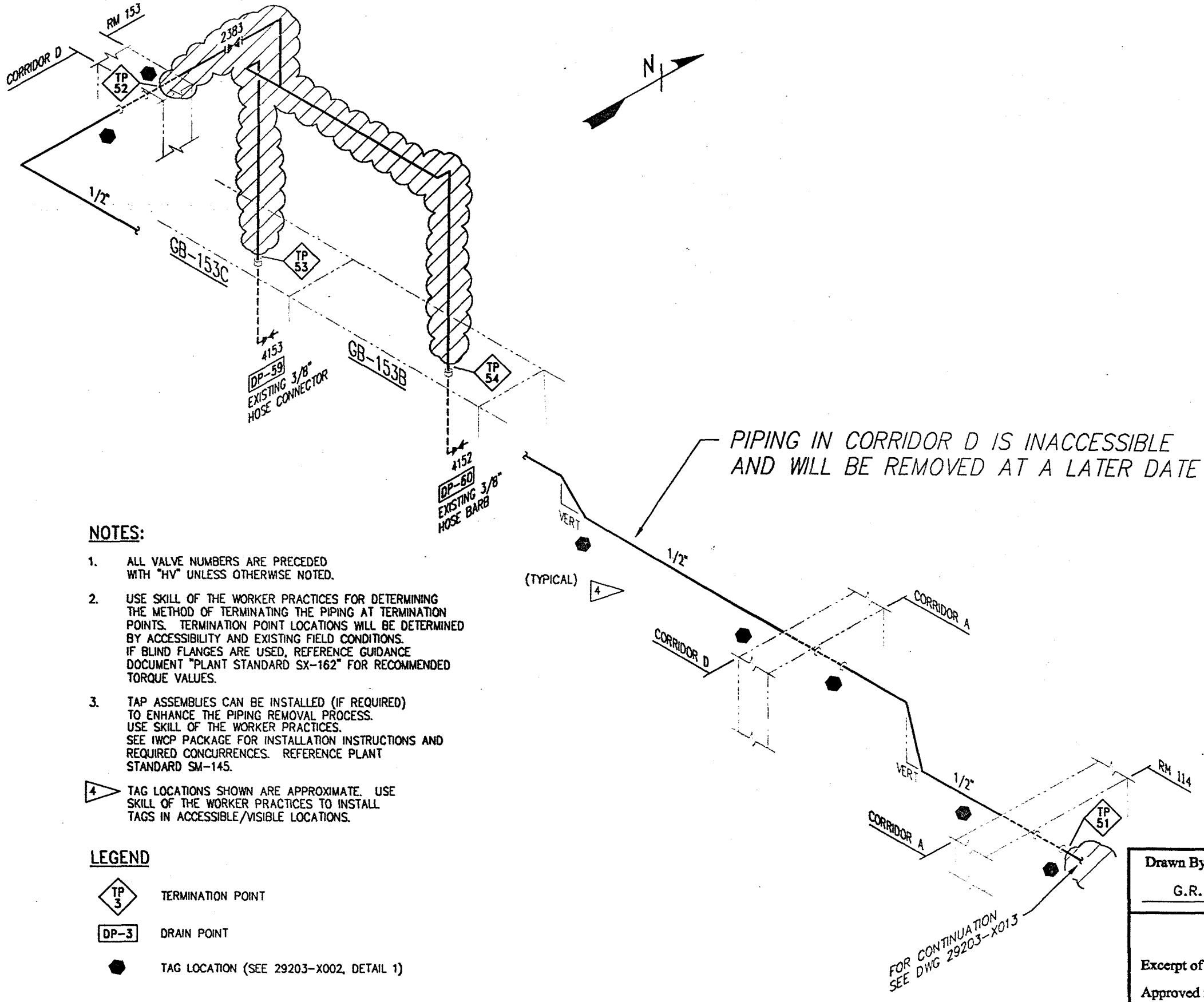
Figure 15: System # 21– Subsystem #4



NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. USE SKILL OF THE WORKER PRACTICES FOR DETERMINING THE METHOD OF TERMINATING THE PIPING AT TERMINATION POINTS. TERMINATION POINT LOCATIONS WILL BE DETERMINED BY ACCESSIBILITY AND EXISTING FIELD CONDITIONS. IF BLIND FLANGES ARE USED, REFERENCE GUIDANCE DOCUMENT "PLANT STANDARD SX-162" FOR RECOMMENDED TORQUE VALUES.
3. TAP ASSEMBLIES CAN BE INSTALLED (IF REQUIRED) TO ENHANCE THE PIPING REMOVAL PROCESS. USE SKILL OF THE WORKER PRACTICES. SEE IWCP PACKAGE FOR INSTALLATION INSTRUCTIONS AND REQUIRED CONCURRENCES. REFERENCE PLANT STANDARD SM-145.

4 TAG LOCATIONS SHOWN ARE APPROXIMATE. USE SKILL OF THE WORKER PRACTICES TO INSTALL TAGS IN ACCESSIBLE/VISIBLE LOCATIONS.

LEGEND

- TP 3 — TERMINATION POINT
- DP-3 — DRAIN POINT
- ⬢ — TAG LOCATION (SEE 29203-X002, DETAIL 1)

DRAFT

SYSTEM 21 (12N NITRIC ACID)

SUB-SYSTEM 4 (ROOM 153)

Drawn By:	Checked By:	Internal Drawing Number:
G.R. VINCENT		SK-T0100274-X15

Title Block Sheet 30 of 30

Excerpt of Master Drawing Number: 29203-1 Revision / Issue F

Approved for use with IWCP/Authorization Project Number: T0100274

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AutoCAD File: X12N153