0040542 COMPLETE

ENGINEERING CHANGE NOTICE

W 86730

Page 1 of 2

1. ECN 194563

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental ☒ Direct Revision ☒ JB Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	O. H. Bradt, 300 Area Liquid Effluent Process Engineering, 372-3423 L4-96	3/3/94
	5. Project Title/No./Work Order No. 300 Area Process Sewer Piping Upgrade, Project 94L-EWL-070	6. Bldg./Sys./Fac. No. 300 Area Process Sewer
	7. Impact Level N/A	
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) ~~N/A~~ WHC-SD-L070-FDC-001, Rev. 1	9. Related ECN No(s). 194567
	10. Related PO No. N/A	

11a. Modification Work	11b. Work Package No.	11c. Modification Work Completed	11d. Restored to Original Condition (Temp. or Standby ECNs only)
☐ Yes (fill out Blk. 11b) ☒ No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

This supplement is to request DOE-RL to review and approve of WHC-SD-L070-FDC-001, previously sent to DOE-RL as information, and is also attached with this request.

MAR 1995 RECEIVED EDMS

13a. Justification (mark one)	13b. Justification Details
Criteria Change ☐ Design Improvement ☐ Environmental ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	DOE-RL Review and approval required for change to L-070 FDC.

14. Distribution (include name, MSIN, and no. of copies)

O. H. Bradt	L4-96 (1)
E. A. Green	A7-27 (1)
M. B. Hitt	A7-27 (10)
D. W. Lindsey	L4-96 (1)
G. R. Mezger	A5-18 (1)
Central Files	L8-04 (Orig.)

RELEASE STAMP

OFFICIAL RELEASE BY WHC 20

DATE MAY 25 1994

Sta. 21

A-7900-013 (06/92)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 194563

15. Design Verification Required	16. Cost Impact N/A ENGINEERING	CONSTRUCTION	17. Schedule Impact (days) N/A
☐ Yes	Additional ☐ $ _____	Additional ☐ $ _____	Improvement ☐ _____
☒ No	Savings ☐ $ _____	Savings ☐ $ _____	Delay ☐ _____

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☒	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	_____	☐
Environmental Report	☐	Inspection Plan	☐	_____	☐
Environmental Permit	☐	Inventory Adjustment Request	☐	_____	☐

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
N/A	N/A	N/A

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Engineer O. H. Bradt/ [signature]	3/3/94	PE	
Cog. Mgr. J. A. Eacker/ [signature]	3/3/94	QA	
QA		Safety	
Safety		Design	
Security		Environ.	
Environ.		Other	
Projects/Programs			
Tank Waste Remediation System			
Facilities Operations		DEPARTMENT OF ENERGY	
Restoration & Remediation		Signature or Letter Number	
Operations & Support Services		M. B. Hitt/ see 94-ENB-56	5/12/94
IRM		ADDITIONAL	
Other		E. A. Green/ see 94-ENB-56	5/12/94
		G. R. Mezger/ G. R. Mezger	5/4/94

Date Received: 3/3/94	**INFORMATION RELEASE REQUEST**	Reference: WHC-CM-3-4

Complete for all Types of Release

Purpose		ID Number (include revision, volume, etc.)
[] Speech or Presentation [] Full Paper [] Summary [] Abstract [] Visual Aid [] Speakers Bureau [] Poster Session [] Videotape (Check only one suffix)	[] Reference [X] Technical Report [] Thesis or Dissertation [] Manual [] Brochure/Flier [] Software/Database [] Controlled Document [] Other	(WHC-SD-L070-FDC-001, REV 2) ~~SUPPLEMENTAL~~ ECN 194563 List attachments. NA Date Release Required MARCH 11, 1994

Title	Unclassified Category	Impact Level
300 AREA PROCESS SEWER PIPING UPGRADE, PROJECT 94L-EWL-070, FUNCTIONAL DESIGN CRITERIA REVISION, SUPPLEMENT	UC- NA	NA

New or novel (patentable) subject matter? [X] No [] Yes If "Yes", has disclosure been submitted by WHC or other company? [X] No [] Yes Disclosure No(s).	Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? [X] No [] Yes (identify)
Copyrights? [X] No [] Yes If "Yes", has written permission been granted? [X] No [] Yes (Attach Permission)	Trademarks? [X] No [] Yes (Identify)

Complete for Speech or Presentation

Title of Conference or Meeting	Group or Society Sponsoring

Date(s) of Conference or Meeting	City/State	Will proceedings be published?	Will material be handed out?
		[] Yes [] No	[] Yes [] No

Title of Journal

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	[]	[X]			
Patent - General Counsel	[X]	[]	S. W. Berglin	Per OGC	
Legal - General Counsel	[X]	[]	S. W. Berglin	memo 2/4/93.	
Applied Technology/Export Controlled Information or International Program	[]	[X]			
WHC Program/Project	[X]	[]	J. A. Eacker	J. A. Eacker	3/3/94
Communications	[]	[X]			
RL Program/Project	[X]	[]	G. R. Mezger	G. R. Mezger	3/9/94
Publication Services	[]	[X]			
Other Program/Project	[]	[X]			

Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
References Available to Intended Audience	[X]	[]
Transmit to DOE-HQ/Office of Scientific and Technical Information	[]	[X]

Author/Requestor (Printed/Signature) Date
O. H. Bradt/ O. H. Bradt 3/3/94

Intended Audience
[] Internal [] Sponsor [X] External

Responsible Manager (Printed/Signature) Date
J. A. Eacker/ J. A. Eacker 3/3/94

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

APPROVED FOR RELEASE
OFFICIAL DOCUMENT
MB
Date 3/9/94

Date Cancelled	Date Disapproved

SUPPORTING DOCUMENT

1. Total Pages 15

2. Title

300 AREA PROCESS SEWER PIPING UPGRADE, PROJECT 94L-EWL-070, FUNCTIONAL DESIGN CRITERIA REVISION, SUPPLEMENT

3. Number

WHC-SD-L070-FDC-001

4. Rev No.

2

5. Key Words

Process Sewer
L-070
300 Area

6. Author

Name: O. H. Bradt

Signature 3/3/94

Organization/Charge Code ~~24320~~ W86730/F24AB

7. Abstract

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9. Impact Level N/A

10. RELEASE STAMP

OFFICIAL RELEASE BY WHC (20)
DATE MAY 25 1994
Sta. 21

RECORD OF REVISION

(1) Document Number WHC-SD-L070-FDC-001

Page 1

(2) Title
L-070 FDC

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
Ø	(7) INITIAL ISSUE	KDH	4/17/91
RS 1	INCLUDE VACUUM SYSTEM/ECN194567	OH Bradt	2/11/94
2 RS	Replaces Rev. 1--Complete rewrite per ECN-194563.	OH Bradt 5/24/94	JA Eacker for JA Eacker 5/24/94

A-7320-005 (08/91) WEF168

WHC-SD-L070-FDC-001
Rev. 2

FUNCTIONAL DESIGN CRITERIA

300 AREA PROCESS SEWER PIPING UPGRADE

Project 94L-EWL-070

Issued by:

Westinghouse Hanford Company

May 10, 1994

for the

U. S. Department of Energy

Richland Operations Office

Richland, Washington

FUNCTIONAL DESIGN CRITERIA

300 AREA PROCESS SEWER PIPING UPGRADE

PROJECT 94L-EWL-070

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FUNCTIONAL DESIGN CRITERIA
300 AREA PROCESS SEWER PIPING UPGRADE
PROJECT 94L-EWL-070

1.0 INTRODUCTION

1.1 BACKGROUND

The Tri-Party agreement established milestone M-17-09 to provide an operational 300 Area Treated Effluent Disposal Facility (TEDF) by December 1994. At that time, continued discharge to the process trench would cease. The 300 Area TEDF is being provided by project L-045H. Another milestone, M-17-06G, to limit the process discharge to the 300 Area Process Trench to 325 gallons per minute by May 1993 has been met. The Environmental Protection Agency (EPA) and the Washington State Department of Ecology (DOE) have identified two additional milestones in regard to the existing 300 Area process sewer piping replacement. These are M-17-06J to "Submit design documentation for the 300 Area Process Sewer piping replacement to EPA and Ecology by April 1995", and M-17-06K to "Replace the 300 Area Process Sewer piping beginning at five feet outside the contributor buildings and replacing the piping up to the interface point into the 300 Area Treated Effluent disposal Facility by June 1997."

An important issue relative to the process sewer piping replacement is the integrity of existing piping and past material accumulations in the existing process sewer piping system. Portions of the existing process sewer system have been in use since the early 1940s and were used when there were minimum restrictions on disposal of hazardous materials and low level radioactive materials. These practices were discontinued in February 1985 when administrative controls were established in all buildings to stop disposal of hazardous material to the process sewer system. A report on the characterization of the 300 Area process wastewater concluded that per the proposed designation it is not a dangerous waste, pursuant to the Washington (State) Administrative Code (WAC) 173-303-070, Dangerous Waste Regulations. (See Reference 1.) The current process sewer system is nominally a gravity system with one lift station. The system includes a Retention Process Sewer (RPS) system for five laboratories. These laboratories are equipped with radiation detection and automatic diversion systems. If the radioactivity exceeds preset limits, the water is automatically diverted to the Liquid Radioactive Waste system. Normally, the water goes through the RPS piping to the 307 basins where it is again monitored for radioactivity prior to being pumped into the process sewer system. It is planned to maintain this capability with the process sewer piping replacement. The 307 basins are not included as part of this proposed project.

A Value Engineering (VE) Study for Project L-070 was held in December 1992. One of the major items addressed in the study was a review of a vacuum wastewater collection system, which was a newly identified system not addressed in either the engineering study or the conceptual design report. The vacuum system was judged to be as reliable, less expensive and to have less maintenance than the proposed pressurized system which was the basis for the conceptual design report. As a follow on to the VE study, an Advanced Conceptual Design (ACD) that used the vacuum collection system concept as its basis is nearing completion. This ACD confirmed the lower cost of the vacuum system and is the basis for this Functional Design Criteria revision and for future design.

1.2 JUSTIFICATION

The existing 300 Area process sewer system consists of about 34,500 lineal feet of piping ranging from 4 inch to 36 inch and which connects to about 37 buildings. As part of the 300 Area waste minimization program the process water discharges from many buildings was discontinued and the sewer line connections sealed shut within the buildings. Most of the remaining buildings need to remain connected to the process sewer system for future use. The existing piping is primarily vitreous clay and some of which has been in service about 47 years. Known discharges through the piping include one kilogram and larger quantities of uranium, acids, solvents, organics and other chemicals used throughout the laboratories and for manufacture of fuel assemblies used in the operation of the Hanford 100 Area reactors. The integrity of the piping and the accumulation of past discharges presently remaining in the pipe are largely unknown. Limited television inspection of about 4% of the pipe (about 1500 lineal feet) in selected locations showed some accumulations of unknown materials and some existing cracks in the pipe. Recently completed characterization of the process water has indicated low concentrations of materials which will require treatment before discharge to the Columbia River. These constituents may be coming from the sludge deposited in the bottom of some of the pipes. There is a concern from the limited television examination and from past operating experiences that the system piping may be leaking effluent into the soil column. This project proposes providing a high integrity process sewer piping system to ensure that the process water flow reaches the treatment facility and to preclude leakage to the soil column.

1.3 SCOPE

It is proposed in this project that a new combination vacuum, gravity and pressurized process sewer system be installed to replace the existing system. Gravity sections of the system would be selectively used to reduce the number of vacuum sumps and pressurized systems used where appropriate to accommodate large flows. The new collection system would start about five feet from each building unless special conditions exist or unless recently installed pipe is in good condition and would terminate at a new common collection sump on the north end of 300 Area which is being provided by Project L-045H, 300 Area Treated Effluent Disposal Facility (TEDF). The replacement system will consist of pipe installed at a nominal depth of about 4.0 feet. Collection sumps for the vacuum system will be installed near most of the buildings to be connected and at other common intermediate locations. The vacuum system would have dual vacuum pumps and have signals from the vacuum building to a local control panel and a remote alarm station at TEDF. It is planned to retain about 5 feet of the present system sewer lines where they exit from the buildings. The project will include the removal of some existing piping to allow for construction of the collection sumps and when connecting the new lines to existing building process sewer discharge lines. Removal of the remaining abandoned sewer pipe is not part of this project; but, would be included in the Remedial Investigation/Study Work Plans for 300 Area and disposition made accordingly. Information that is necessary for planning the D&D of the sewers being abandoned by this project shall be made available to the appropriate operable unit managers.

2.0 FUNCTIONS

The function of this project is to provide a new process sewer collection piping system in the 300 Area to replace the existing gravity flow process sewer piping system. The equipment and systems provided by this project shall achieve the following minimum requirements:

1) The new pipe to be provided shall be watertight and shall be satisfactory for the intended flow rates, vacuum, pressure, and service conditions. An expansion capability per facility of approximately 25 percent in flow rate, but possibly higher or lower in the case of certain facilities, shall be provided and the total flow in the system shall be compatible to the TEDF, (L-045H).

2) Appropriate connections shall be made by this project to existing process sewer pipelines external to each of the buildings. The new pipe system nominally shall start about five feet from connected buildings. Where multiple building connections connect to a common sewer trunkline, the common trunkline leading from the facility shall be considered the connection point for the replacement sewer line. Where new piping is installed and existing piping abandoned, the abandoned pipe shall be plugged or capped at the point where the transition is made. The number of connections to the process sewer shall be minimized by ensuring that only buildings presently having process flows are connected. Or, if specified, as in the case of the planned 3100 building a tee can be provided. (A tentative listing of the buildings together with the anticipated flow rates is provided in the Appendix.)

3) Collection sumps shall be provided near each building as needed to collect and transport the liquids from the connected buildings to the vacuum collection station. The process sewer water shall then be pumped from the vacuum collection station to the receiving sump provided by TEDF. Each vacuum sump shall contain at least one vacuum valve to operate the sump discharge. The vacuum collection station shall consist of an adequately sized building containing at least two vacuum and discharge lift pumps, a process water collection tank, vacuum reservoir, control panel, controls and alarms. A satellite vacuum station with vacuum supplied from the main vacuum collection station may be used for collection of the retention process sewer flow (see (6) below). Local alarm systems and signals sent to a central alarm station shall be provided. System isolation valves shall be provided as needed for maintenance and operation. The collection sumps shall be infiltration resistant and at depths to accommodate the building outlet elevations and required sump depths. Fire protection, emergency lighting, exiting, etc., shall be designed in accordance with DOE Orders including 5480.7 and applicable NFPA Codes. Provisions for lighting the area external to the collection sumps shall be considered. The vacuum collection buildings' lighting shall be in accordance with the requirements of DOE 6430.1A. HVAC shall be provided in the vacuum collection buildings to maintain temperatures between 50-90°F in the buildings.

4) The elevation of the piping shall be at a sufficient depth to prevent freezing, nominally four feet unless a greater or lesser depth is dictated by the building connection. Structural integrity or protection of the piping from roadway or other overhead loads shall be provided.

5) Routing of the piping shall be designed to minimize interferences with existing underground and ground level equipment and structures. In addition, the piping shall be routed to avoid interfering with known future remediation actions and site planning activities.

6) Those buildings connected to the retention process sewer shall continue to have the process water directed to the 307 retention basin facility for radioactivity monitoring and disposal as appropriate. (Current normal practice at the 307 basins is to pump the water from the basins to the process sewer. The pumps operate from liquid level controls in the basins. When radioactivity in the basin water exceeds set levels, interlocks prevent the pumps from operating and also indicate an alarm condition. If determined to be radioactive, the water can be isolated and diverted to appropriate liquid radioactive waste collection and load-out systems.) New piping to and from the 307 retention basin facility shall be provided as part of this project, to interface with Project W-345, 307 Basin Maintenance.

7) Electrical supply for the vacuum collection station shall be provided from existing electrical equipment whenever and wherever technically and economically feasible. To provide backup capability to loss of the primary electrical power supply, at least one vacuum pump shall be connected to the 300 Area standby electrical power supply.

8) The materials and equipment provided by this project shall have a minimum 25 year life with normal maintenance, repair, and replacement.

3.0 DESIGN PARAMETERS

3.1 OPERATING PERSONNEL

It is anticipated that about one half of a man year of operating personnel would be required continually to operate the system as a result of this project. This includes about one/fourth of a man year for operations surveillance, and one/fourth for maintenance of the mechanical, electrical and alarm equipment.

3.2 SAFETY

Design and construction must ensure that normal operating interruptions to the buildings connected to the process sewer and to the anticipated treated effluent disposal facility are minimized, scheduled, and coordinated during the construction and testing phases of the project. Construction safety rules as defined in DOE 5480.4 shall apply and be used during construction of this project. The fire, explosion, hazardous, radiological and industrial safety, concerns of the project shall be addressed during the design. Any identified problems including tie-ins to existing building systems shall be resolved prior to design completion. The construction and implementation of the system provided by this project involve hazards that are routinely encountered and accepted in the course of everyday living by the vast majority of the general public. Prejob planning and job hazard analysis shall identify all known and potential safety hazards per WHC-CM-4-3, Standard A3. Safety reviews performed during the normal planning, design, and execution of the project will identify hazards associated with construction and operations which will be mitigated by corrective actions.

3.3 COMMUNICATION SYSTEMS

A telephone shall be installed in the vacuum collection station, with lines required in both the main and satellite vacuum collection stations, but not the valve pits. Signaling and monitoring communications will be required between the process sewer and an operational systems control point.

3.4 UTILITIES

Electric service including normal and standby electrical power shall be extended to the vacuum collection station from existing systems. Electric service to the vacuum collection sumps, if needed for lighting or other needs, shall be extended from existing systems. Outages of portions of the process sewer may be required to accomplish this project. The system design shall provide for minimum interruption of services during the replacement and connection of the new sewer pipe, electrical equipment, and other proposed modifications. These outages shall be coordinated to minimize plant operational interferences.

3.5 MAINTENANCE

The equipment shall be designed and located to permit safe operation and easy access for maintenance. It is estimated that the maintenance activities as a result of this project will increase by an additional one/fourth man year over that required in the existing system.

3.6 ENVIRONMENTAL PROTECTION

This project is planned to minimize the impact on the environment by replacing a suspect piping collection system with a new high integrity system. The disposal of equipment and materials removed from this project will be in accordance with applicable environmental regulations. Design, construction, installation and operation will be in compliance with all appropriate local, state and federal regulations, as listed in WHC-CM-7-5. An Environmental Assessment, (EA) will be prepared and submitted for this project.

3.7 PHYSICAL SECURITY AND SAFEGUARDS

The existing physical security and safeguards procedures shall be used. No additional physical security or safeguards are expected as a result of this project. All of the proposed construction work is inside the 300 Area. Escorts shall be used as required within the 300 Area. If any security fence is to be breached, security shall be notified at least 24 hours in advance.

3.8 SITE LOCATION

All construction associated with this project will be located within the 300 Area . The vacuum system collection station is planned to be located central to the 300 Area. The satellite vacuum system collection station is planned to be located near the 307 basins.

3.9 MAJOR AUTOMATIC DATA PROCESSING (ADP)

No ADP equipment is required for this project.

3.10 DECONTAMINATION AND DECOMMISSIONING (D&D)

Decommissioning and disposal of minimum amounts of the existing process sewer system will be required to allow for construction of the new lift stations or collection sumps. Funding is included in the Project for this activity. Removal and disposal of the material will be made using existing procedures as defined in WHC-CM-4-3, Industrial Safety, Standard A-3, Pre-job Planning and WHC-CM-7-5, Environmental Compliance Manual, Part Q, New and Modified Facilities. Removal and disposal of the remainder of the abandoned process sewer piping system is not included as a part of this project; but, would be included in the Remedial Investigation/Study Work Plans for 300 Area and disposition made accordingly.

4.0 CODES AND STANDARDS

4.1 QUALITY ASSURANCE

Quality Assurance (QA) activities for all contractors involved in the development, design, construction, testing and inspection of the proposed facility shall be formulated and executed through the use of a Quality Assurance Project Plan (QAPP). The QAPP shall identify the WHC QA program requirements and provide direction for the types of verifications necessary to satisfy the functional requirements of the facility within the project scope.

4.2 QA PROGRAM REQUIREMENTS

The Quality Assurance program requirements shall be in accordance with DOE Order 6430.1A, Section 0140 "Quality Assurance" (DOE 1989); DOE Order 5700.6C, "Quality Assurance" (DOE 1991); and WHC-CM-4-2, "Quality Assurance Manual" (WHC 1989d). The basis for establishing Quality Assurance program requirements is the Impact Level and Safety Classification as defined in WHC-CM-1-3, "Management Requirements and Procedures"; MRP 5.43, "Impact Levels" and MRP 5.46, "Safety Classification of Systems, Components, and Structures".

4.3 SAFETY CLASS REQUIREMENTS

Safety classification of systems, components, and structures shall be determined by risk analyses in accordance with DOE Order 6430.1A, Section 1300-3, using the criteria and methodology provided in MRP 5.46. Westinghouse Hanford Company Class 3 is the highest classification anticipated for any system, component, and/or structure which will be applied to this project. This project contains systems, components or structures which are designed to protect individuals within the plant boundaries from occupational hazards with the potential of causing significant harm. These conditions would not adversely affect the environment or safety and health of the public. This project is not within the analyzed bounds of an applicable Safety Analysis Report (SAR).

4.4 APPROVAL DESIGNATOR REQUIREMENTS

Approval designator and approval requirements of documents important to safety, quality, or environmental shall be determined in accordance with the procedure defined in WHC-CM-3-5, section 12.7. The approval designator shall be entered in the approval section of the document. Based on the possibility of encountering various contaminants and unknown hazardous materials, approval designators should reflect the requirement for WHC Industrial Safety & Health review and approval. Additional requirements for approval of documents may be specified in project, program, or division/department implementing procedures.

5.0 REFERENCES

1. WHC-EP-0342, Addendum 1, 300 Area Process Wastewater Stream-Specific Report, August 1990.

2. WHC-SD-L070-ES-001 Rev. 0, Engineering Study, 300 Area Process Sewer Replacement, Project L-070, February 1991.

3. WHC-SD-L070-CDR-001 Rev. 0, 300 Area Process Sewer Piping Upgrade, Project L-070, June 1992.

4. Value Engineering Study of Project L-070, December 1992.

5. WHC-CM-4-3, Industrial Safety Manual.

6. WHC-CM-4-33, Security Manual.

7. WHC-CM-7-5, Environmental Compliance.

8. WHC-CM-4-40, Industrial Hygiene Manual.

6.0 CODES AND REGULATIONS

As applicable:

Department of Energy Order 5400.1 "General Environmental Protection"
Department of Energy Order 5400.5 "Radiation Protection of the Public and the Environment"
Department of Energy Order 5400.3 "Hazardous and Radioactive Mixed Waste Program"
Department of Energy Order 5440.1E "National Environmental Policy Act Compliance Program"
Department of Energy Order 5480.1B "Environmental, Safety, and Health Program for Department of Energy Operations"
Department of Energy Order 5480.5 "Safety of Nuclear Facilities"
Department of Energy Order 5480.19 "Conduct of Operations Requirements for DOE Facilities"
Department of Energy Order 5480.21 "Unreviewed Safety Questions"
Department of Energy Order 5480.22 "Technical Safety Requirements"
Department of Energy Order 5632.6 "Physical Protection of DOE Property and Unclassified Facilities"
Department of Energy Order 6430.1A "General Design Criteria"
40 CFR 61, Subpart H, National Emission Standarsd for Emissions of Radionuclides other than Radon from Department of Energy Facilities"
10 CFR 1921, "National Environmental Policy Act"
29 CFR 1910, "Occupational Safety and Health Standards"
40 CFR 122, "National Pollutant Discharge Elimination System"
36 CFR 800, "Protection of Historical and Cultural Properties"
173-400, Washington Administrative Code, General Regulations for Air Pollution Sources
246-247, Washington Administrative Code, Radioactive Air Emissions Program
173-460, Washington Administrative Code, Toxic Air Pollutants
173-240, Washington Administrative Code, Approval of engineering reports, plans and specifications and operating and maintenance manual
173-303, Washington Administrative Code, Dangerous Waste Regulations
NFPA 70, "National Electrical Code" 1993 Edition
29 CFR 1926, "Construction Safety and Health Standards"
296-155, Washington Administrative Code, Construction Safety and Health Standard
Department of Energy Order 5480.4 "Environmental Protection, Safety, and Health Protection Standards"

7.0 APPENDIX A

300 AREA BUILDINGS TO BE CONNECTED TO THE REPLACEMENT PROCESS SEWER	
BUILDING	FLOW-GPM
305	1.0
306E	5.0
306W	10.0
309	2.0
313*	2.0
314	10.0
318	2.0
320	5.0
323	1.0
324	10.0
325	10.0
326	15.0
327	10.0
329	10.0
331	20.0
333*	5.0
336	1.0
337,B,HB	13.0
338	5.0
340	2.0
350-A	5.0
382,B,C,D	19.0
384	12.0
3100**	10.0
3706*	10.0
3709	5.0
3720	3.0
3730	2.0
3745-A,B	10.0
3746A	3.0
3802	1.0
Subtotal	219.0
Increase for growth and match L-045	106.0
Total Flow for design	325.0

* To be reviewed for elimination of process sewer connection and conversion of the wet sprinkler to a dry sprinkler type.

** Future construction planned by PNL.

NOTE: This appendix is for A/E information only and represents the 300 Area buildings presently known to be connected to the process sewer in 1997 and the flow rates currently identified.