

**WASTEWATER STREAM  
CHARACTERIZATION FOR  
TA 53-315, 429, 444, 460, 464, 469,  
475, 476, 479, 487, 499, 501, 507,  
511, 517, 520, 558, 575, 596, 598,  
599, 606, 680, 719, 720, 721, 722,  
723, 737, 738, 739, 740, 741, 742,  
749, 806, 807, 810, 817, 819, 898,  
1022, 1114, 1115, 1116, 1117 and  
1118**

**at  
Los Alamos National Laboratory**

**ENVIRONMENTAL STUDY**

**CHARACTERIZATION REPORT #35**

WASTEWATER STREAM  
CHARACTERIZATION FOR  
TA 53-315, 429, 444, 460, 464, 469, 475, 476,  
479, 487, 499, 501, 507, 511, 517, 520, 558, 575,  
596, 598, 599, 606, 680, 719, 720, 721, 722, 723,  
737, 738, 739, 740, 741, 742, 749, 806, 807,  
810, 817, 819, 898, 1022, 1114, 1115, 1116,  
1117 and 1118

ENVIRONMENTAL STUDY

prepared for:  
THE LOS ALAMOS NATIONAL LABORATORY  
Los Alamos, New Mexico

under subcontract 9-XG8-2874P-1

by:  
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May, 1992

## EXECUTIVE SUMMARY

Buildings 315, 429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 817, 819, 898, 1022, 1114, 1115, 1116, 1117 and 1118 in TA-53 were visited to document all drain piping and to make permitting recommendations. The number of pipes found exiting the building are as follows:

- 1) from 53-315: one sanitary outfall collecting waste from a sink drain and an equipment room floor drain, discharging to the sanitary sewer collection system, two disconnected humidified discharge pipes and a fire system blowdown pipe,
- 2) from 53-898: one sanitary outfall collecting waste from a janitor's sink and a restroom lavatory, urinal and toilet and an a compressed air bleed,
- 3) from buildings 53-429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 819, 1022, 1114, 1115, 1116, 1117 and 1118: no drains,
- 4) building 53-817 has been removed from the site and salvaged.

No EPA application forms (2C and 2D) are attached since none of the outfalls require permitting. Most of the structures are transportainers and trailers without water sources or drains.

Recommendations for repiping are provided to allow outfall consolidation to minimize permit maintenance requirements and to bring the facility into compliance with the Laboratory's NPDES Permit. Floor drain plugging is recommended where the potential for discharge of pollutants exists.

A waste stream database has been prepared listing wastewater type and flowrate for each outfall.

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## 1.0 INTRODUCTION

Between April 1 and April 7, 1992 Scott Carson of Santa Fe Engineering (SFE) toured buildings 315, 429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 817, 819, 898, 1022, 1114, 1115, 1116, 1117 and 1118 in TA-53. The purpose of this study is to identify building drain piping, locate outfalls which discharge into the environment and to characterize the wastewater flows and sources existing at the time of the visit. This report will not reflect any subsequent changes in piping or operation. The Waste Stream Characterization Policy of September 10, 1992 was followed for this study. The following tasks were performed for this purpose:

1. Building drains and all piping exiting the building were identified and laid out in schematic form;
2. Wastewater sources were identified at each drain, and the wastewater was characterized according to flow rate and quality. The location of outfalls and their potential sources of discharge were determined. Potential pollutants were also noted; and
3. Potential problems were identified and recommendations were made for repiping, floor drain plugging and spill containment where deemed appropriate.

Since no unpermitted discharges were observed, no permits have been prepared for discharges from these buildings.

The field investigation proceeded using Los Alamos National Laboratory (LANL) drawings, and drain schematic drawings prepared by SFE to aid in field investigation to insure that all pipes exiting the building were documented. The following information was used to define drain piping and characterize the wastewater streams:

1. Laboratory engineering drawings were used to prepare the SFE drain piping schematic. The Solid Waste Stream Characterization conducted by IT Corporation was reviewed. The National Pollutant Discharge Elimination System (NPDES) Permit, the 1990 NPDES Permit Application submitted by LANL in September, 1990, the latest Federal Facilities Compliance Agreement (FFCA) between the Department of Energy (DOE) and the Environmental Protection Agency (EPA) and the Administrative Order (AO) Docket Number VI-92-1306 were used for reference;
2. SFE verified drain piping by dye checking; and
3. A site visit was performed to verify both LANL drawings and the SFE drain schematic, and to identify potential outfall pipes exiting the building. The visit entailed a room by room inspection of wastewater sources and drains, and interviews with site personnel to assist in wastestream characterization.

## 2.0 FIELD INVESTIGATION

The pipes exiting the building have been assigned an Outlet Piping Number. The four part number, sequentially, identifies the Technical Area where the pipe is located, the building from which the pipe discharges, the letters OPN to indicate that it is an outlet pipe number and the unique number for the pipe. The piping exiting the building will be labeled for easy identification in the future.

Each drain has a unique identification number. Each number consists of three parts. The first part is the floor the drain is on. The second part has letters that indicate the drain type (abbreviations used are summarized in Table 1). The final part is a unique number for each drain. For example, the floor drain numbering on the first floor would start with 1FD1.

The function of each pipe exiting from buildings is listed in Appendix 1 in Tables 2 and 3, with an abbreviations list in Table 1 and non-drain recommendations in Table 4. Appendix 2 contains the waste stream characterization database output, listing wastewater source, flow rates and periodicity information for each outfall drain. Appendix 3 usually contains completed EPA Forms 2C and 2D, however none have been prepared for this report. Appendix 4 provides information about the dye study of building drains. Flow schematics of the drains from each building are attached in Appendix 5 as Figures 2 and 3 and a site plan is included as Figure 1.

### **3.0 RECOMMENDATIONS FOR BUILDINGS WITH NO DRAINS**

Buildings 429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 819, 1022, 1114, 1115, 1116, 1117 and 1118 in TA-53 do not have drains. No permitting is required and no EPA Forms were prepared.

### **4.0 RECOMMENDATIONS FOR BUILDING 53-315**

Table 2 is a summary of the building drains and Figure 2 is a schematic of the building outfalls. No EPA forms are required for outfalls from this building and none were prepared.

#### **4.1 Outfall 53-315-OPN-1**

Outfall 53-315-OPN-1 is a sanitary outfall, collecting drainage from one sanitary sink inside the building, and one floor drain in the equipment room, which receives humidifier condensate and flow from a water heater PRV. The outfall connects to a sanitary manhole outside the building, which discharges to the TA-53 Sanitary Sewage Collection System. No piping changes or permitting is recommended for this outfall and no EPA forms were prepared.

#### **4.2 Outfalls 53-315-OPN-2 and 53-315-OPN-3**

Outfalls 53-315-OPN-2 and 53-315-OPN-3 are disconnected humidifier discharges. Recommendation is made to remove these pipes. No permitting is recommended and no EPA forms were prepared.

#### 4.3 Outfall 53-315-OPN-4

This outfall is a fire system test discharge. Recommendation is made to include this outfall in the Laboratory's Notice of Intent to Discharge (NOI).

#### 5.0 RECOMMENDATIONS FOR STRUCTURE 53-817

This transportainer has been removed from the site and salvaged according to Joyce Martinez of ENG-7. No permitting or piping changes are required and no EPA forms were prepared.

#### 6.0 RECOMMENDATIONS FOR BUILDING 53-898

Table 3 is a summary of the building drains and Figure 3 is a schematic of the building outfalls. No EPA Forms are required for outfalls from this building and none were prepared.

##### 6.1 Outfall 53-898-OPN-1

Outfalls 53-898-OPN-1 is a sanitary outfall, collecting drainage from one janitors sink, one restroom sink, one lavatory and one toilet. The outfall connects to a sanitary manhole outside the building, which discharges to the TA-53 Sanitary Sewage Collection System. No permitting is required and no changes are recommended.

##### 6.2 Outfall 53-898-OPN-2

Outfalls 53-898-OPN-2 is a compressed air bleed, discharging to atmosphere. No permitting is required and no changes are recommended.

## 7.0 CONCLUSION

This document provides the information to characterize buildings 315, 429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 817, 819, 898, 1022, 1114, 1115, 1116, 1117 and 1118 in TA-53. No NPDES permit application forms are required for any outfalls from these buildings.

The outfalls from these buildings are itemized below - no NPDES permits are required:

- 1). from building 53-315: One sanitary sewer connection, two disconnected humidifier discharge pipes and one fire system test drain,
- 2). from building 53-898: one sanitary sewer connection, one compressed air bleed,
- 3). from buildings 53-429, 444, 460, 464, 469, 475, 476, 479, 487, 499, 501, 507, 511, 517, 520, 558, 575, 596, 598, 599, 606, 680, 719, 720, 721, 722, 723, 737, 738, 739, 740, 741, 742, 749, 806, 807, 810, 819, 1022, 1114, 1115, 1116, 1117 and 1118: no drains.
- 4). structure 53-817 has been removed from the site and salvaged.

No permitting is required, as outlined in Tables 2 and 3. The only recommended action is the removal of disconnected piping defined as outfalls 53-315-OPN-2 and 53-315-OPN-3, and filing the fire water system drain pipe in the Laboratory's NOI. Corrective action should be performed as soon as practical to minimize the chance of unpermitted discharge of pollutants.

**TABLE 1**  
**SUMMARY OF ABBREVIATIONS**

ABBREVIATION	MEANING
FD	Floor Drain
LV	Lavatory
SD	Sink Drain
TL	Toilet

**TABLE 2: TA 53-315 DRAIN SUMMARY**

OUTFALL NUMBER	ID NUMBER	ROOM ACTIVITY	STATUS OR RECOMMENDATIONS	EPA FORM PREPARED
53-315-OPN-1 SAN SEWER	1FD1	Computer Room	No Change	No
	1FD1	Equipment Room	No Change	
53-315-OPN-2	N/A	Computer Room	Remove	No
53-315-OPN-3	N/A	Computer Room	Remove	No
53-315-OPN-4	N/A	Equipment Room	NOI	No

**TABLE 3: TA 53-898 DRAIN SUMMARY**

OUTFALL NUMBER	ID NUMBER	ROOM ACTIVITY	STATUS OR RECOMMENDATIONS	EPA FORM PREPARED
53-898-OPN-1 SAN SEWER	1SD1	Restroom	No Change	No
	1LV1	Restroom	No Change	
	1TL1	Restroom	No Change	
	1SD2	Janitor's Closet	No Change	
53-898-OPN-2	N/A	Shop	No Change	No

TABLE 4: NON-DRAIN RECOMMENDATIONS

TA #	BLDG. #	ROOM/AREA	RECOMMENDATION
53	ALL	ALL S.S. SINK DRAINS	POST "NO CHEMICAL DN THIS DRAIN" SIGN

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TA	BLDG	OUTLET PIPING NO	EPA OUTFALL #	DRAIN #	ROOM #	DESCRIPTION	ROOM	RATE	FLOW	PERIODICITY	SEASONAL	SOURCE TYPES
53	315	53-315-OPN-1	09S/SWSC	1FD1		EQUIPMENT ROOM			FLOW IS NIL		No	WATER HEATER, HUMIDIFIER
53	315	53-315-OPN-1	09S/SWSC	1SD1	101	COMPUTER ROOM			5 DAYS A WEEK		No	SANITARY RINSE
53	315	53-315-OPN-2	N/A	N/A	101	COMPUTER ROOM			NONE		No	NONE (DISCONNECTED)
53	315	53-315-OPN-3	N/A	N/A	101	COMPUTER ROOM			NONE		No	NONE (DISCONNECTED)
53	315	53-315-OPN-4	DAYLIGHT	N/A		EQUIPMENT ROOM			ANNUAL TESTING		No	FIRE WATER SYSTEM
53	429	53-429	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	444	53-444	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	460	53-460	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	464	53-464	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	469	53-469	ND	N/A	N/A	STORAGE TRAILER			NO FLOW		No	NONE
53	475	53-475	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	476	53-476	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	479	53-479	ND	N/A	N/A	STORAGE TRAILER			NO FLOW		No	NONE
53	487	53-487	ND	N/A	N/A	SEMI-TRAILER			NO FLOW		No	NONE
53	499	53-499	ND	N/A	N/A	SEMI-TRAILER			NO FLOW		No	NONE
53	501	53-501	ND	N/A	N/A	STORAGE TRAILER			NO FLOW		No	NONE
53	507	53-507	ND	N/A	N/A	SEMI-TRAILER			NO FLOW		No	NONE
53	511	53-511	ND	N/A	N/A	METAL SHED			NO FLOW		No	NONE
53	517	53-517	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	520	53-520	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	558	53-558	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	575	53-575	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	596	53-596	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	598	53-598	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	599	53-599	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	606	53-606	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	680	53-680	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	719	53-719	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	720	53-720	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	721	53-721	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	722	53-722	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	723	53-723	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	737	53-737	ND	N/A	N/A	SHED			NO FLOW		No	NONE

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TA	BLDG	OUTLET PIPING NO	EPA OUTFALL #	DRAIN #	ROOM #	DESCRIPTION	ROOM	RATE	FLOW	PERIODICITY	SEASONAL	SOURCE TYPES
53	738	53-738	ND	N/A	N/A	SHED			NO FLOW		No	NONE
53	739	53-739	ND	N/A	N/A	STORAGE TANK			NO FLOW		No	NONE
53	740	53-740	ND	N/A	N/A	STORAGE TANK			NO FLOW		No	NONE
53	741	53-741	ND	N/A	N/A	STORAGE TANK			NO FLOW		No	NONE
53	742	53-742	ND	N/A	N/A	STORAGE TANK			NO FLOW		No	NONE
53	749	53-749	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	806	53-806	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	807	53-807	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	810	53-810	ND	N/A	N/A	TRAILER			NO FLOW		No	NONE
53	817	53-817	N/A	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE(BUILDING SALVAGED)
53	819	53-819	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	898	53-898-OPN-1	09S/SWSC	1LV1	102A	RESTROOM			5 DAYS A WEEK		No	HAND WASHINGS
53	898	53-898-OPN-1	09S/SWSC	1SD1	102A	RESTROOM			5 DAYS A WEEK		No	HAND WASHINGS
53	898	53-898-OPN-1	09S/SWSC	1SD2	105A	RESTROOM			5 DAYS A WEEK		No	HAND WASHINGS
53	898	53-898-OPN-1	09S/SWSC	1T1	102A	RESTROOM			5 DAYS A WEEK		No	TOILET
53	898	53-898-OPN-2	ATMOSPHERE	N/A	101	RESTROOM			AIR DISCHARGE ONLY		No	COMPRESSED AIR LINE
53	1022	53-1022	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	1114	53-1114	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	1115	53-1115	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	1116	53-1116	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	1117	53-1117	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE
53	1118	53-1118	ND	N/A	N/A	TRANSPORTAINER			NO FLOW		No	NONE

**NO EPA FORMS IN THIS REPORT**

## DYE STUDY INFORMATION

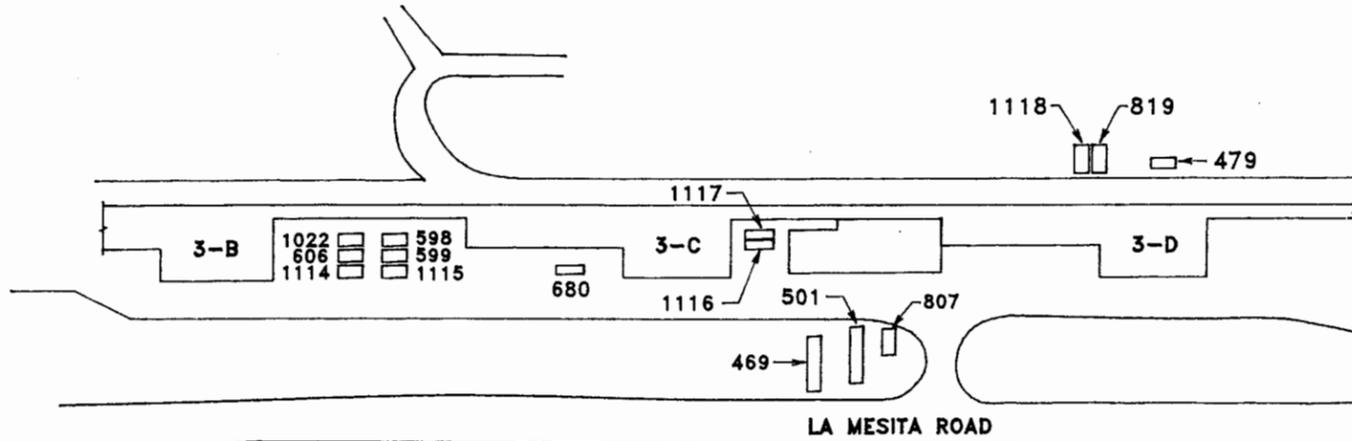
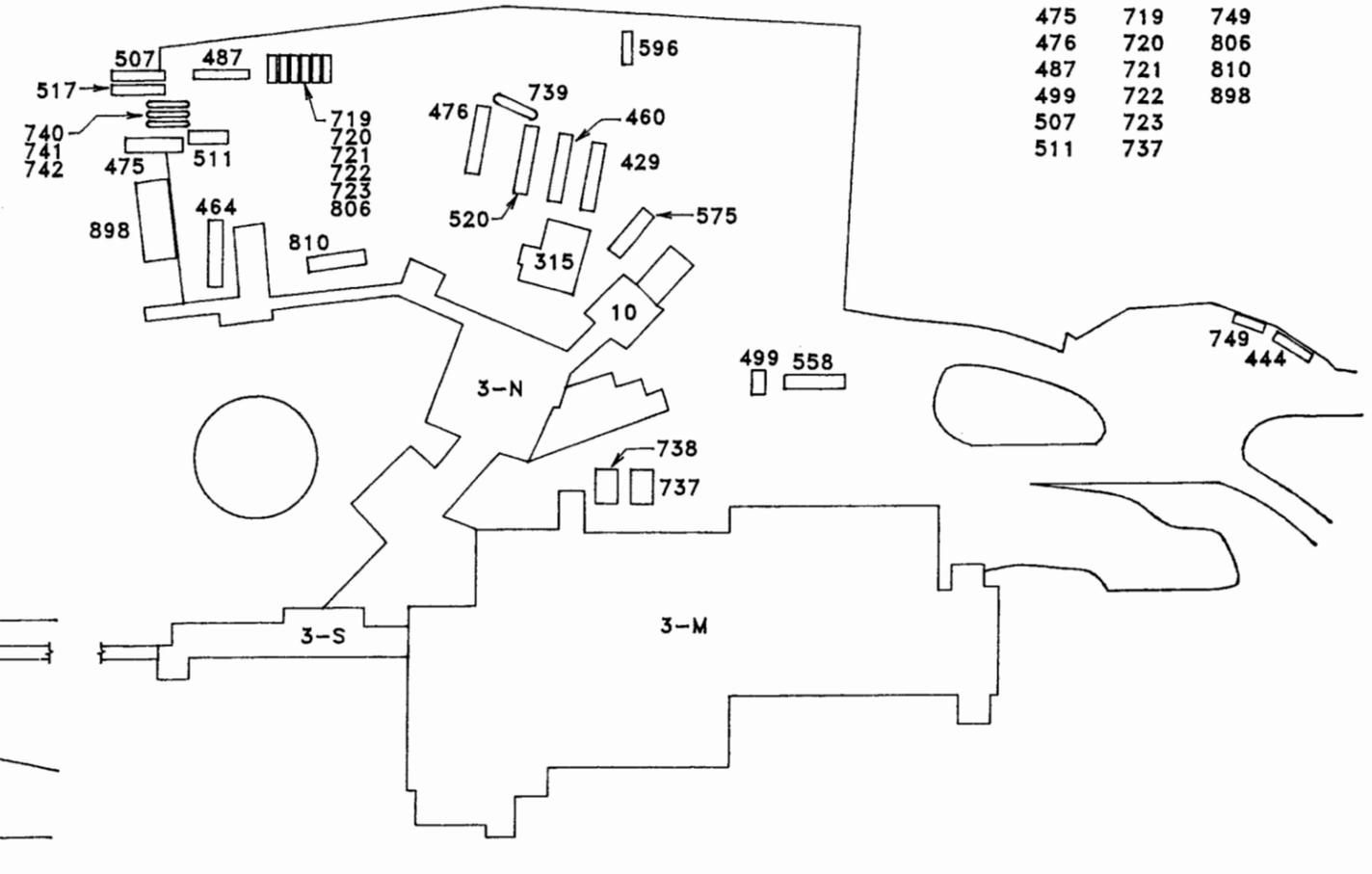
BUILDING NUMBER	DRAIN NUMBER	DID DYE REACH EXPECT DESTINATION?	COMMENTS
53-315	1SD1	YES	NONE
	1FD1	YES	NONE
53-898	1SD1	YES	NONE
	1SD2	YES	NONE

BUILDINGS:

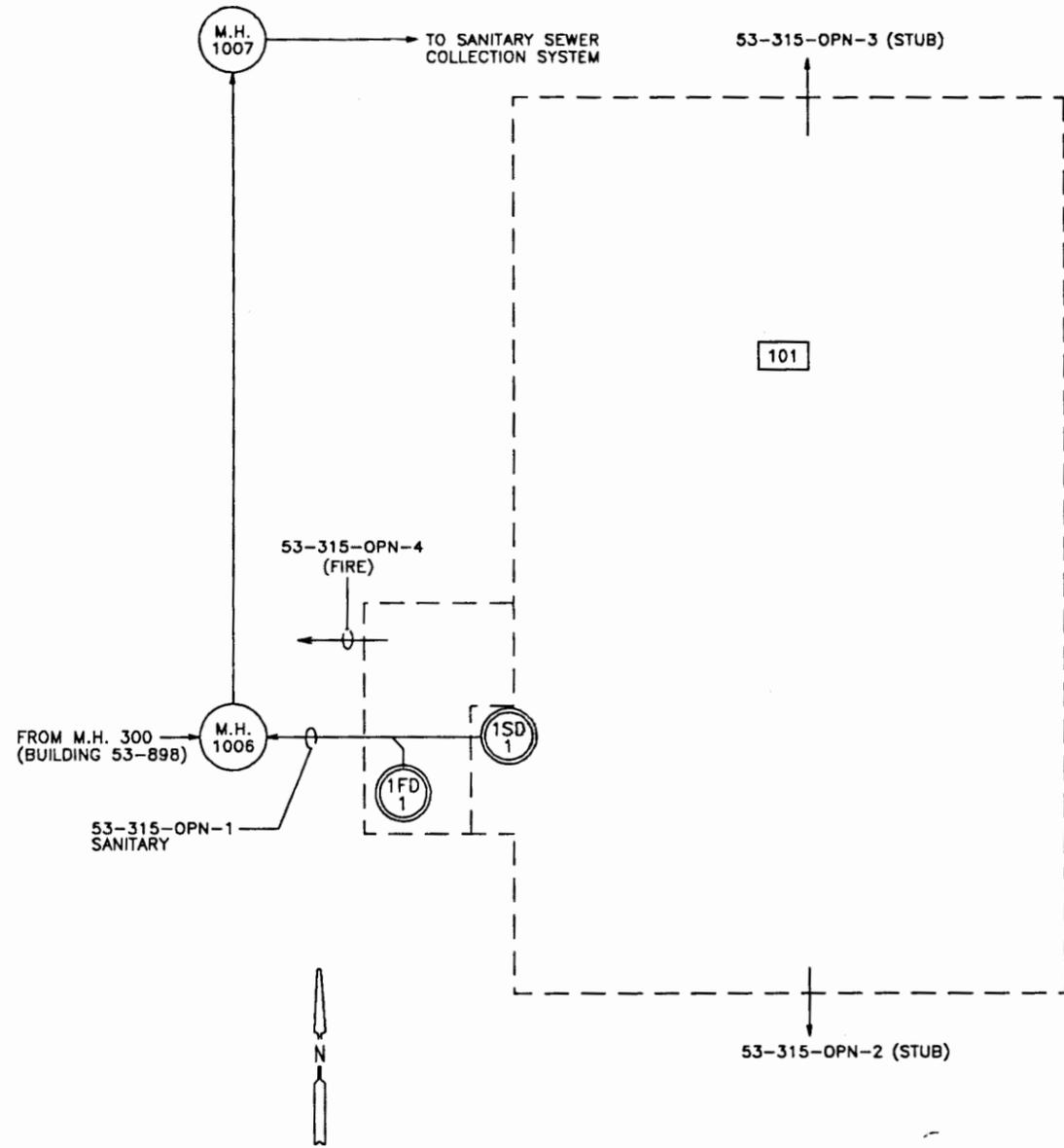
315	517	738
429	520	739
444	558	740
460	575	741
464	596	742
475	719	749
476	720	806
487	721	810
499	722	898
507	723	
511	737	

BUILDINGS:

469	819
479	1022
501	1114
598	1115
599	1116
606	1117
680	1118
807	



SANTA FE ENGINEERING, LTD.				
TA-53 AREA PLAN	DRAWN	MSC		
	DESIGN			
	CHECKED	PEB		
	DATE	5-4-92		
SUBMITTED	RECOMMENDED	APPROVED		
<b>Los Alamos</b>		Los Alamos National Laboratory Los Alamos, New Mexico 87545	SHEET	OF
CLASSIFICATION	REVIEWER	DATE		
REQUESTING DIVISION	11057-35	DRAWING NO.	FIGURE 1	REV.
REQUESTING GROUP				



**NOTES**

- NOTE 1: SCHEMATIC BASED ON DRAWINGS  
ENG-C45353 (SHTS. 2, 3 & 13)
- NOTE 2: MANHOLE NUMBERS OBTAINED FROM  
LANL SEWER SYSTEM DRAWING; NO  
MANHOLES NUMBERS FOUND DURING  
SITE VISIT.

**LEGEND**

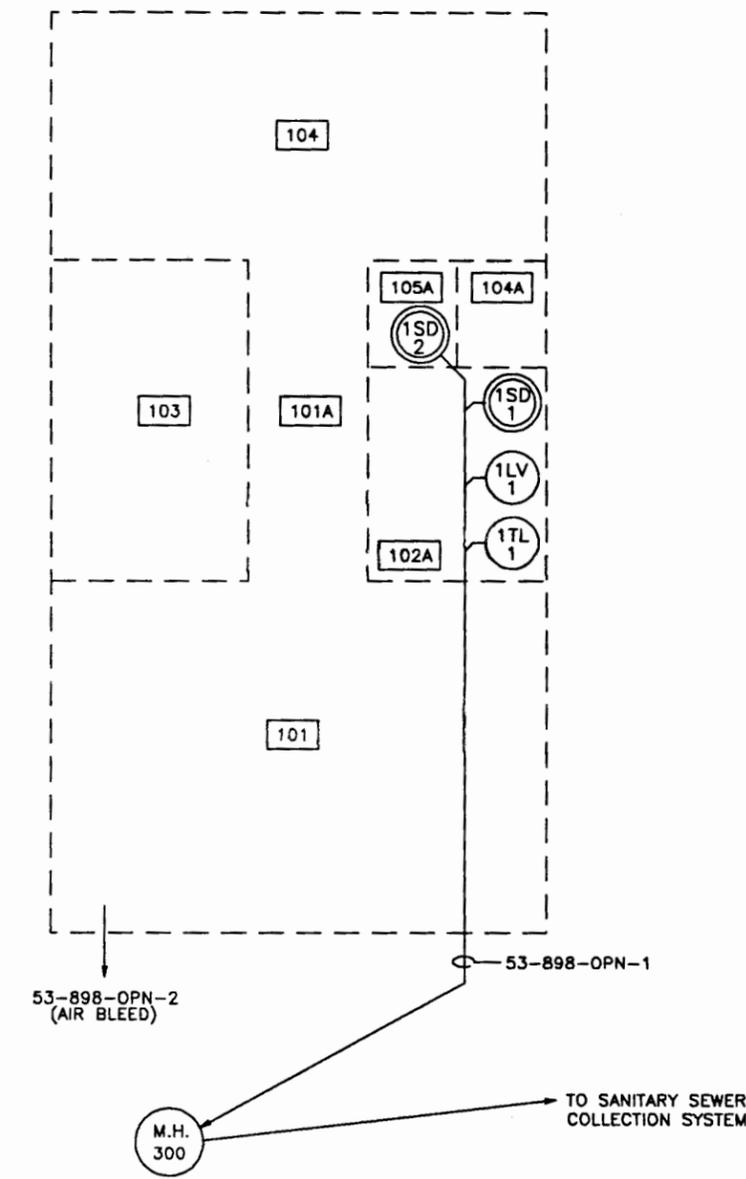
- FD - FLOOR DRAIN  
M.H. - MANHOLE  
SD - SINK DRAIN
-  - DYE TESTED DRAINS

**SANTA FE ENGINEERING, LTD.**

TA 53-315 BUILDING  
DRAIN SCHEMATIC

DRAWN	MSC
DESIGN	
CHECKED	PEB
DATE	5-4-92

SUBMITTED	RECOMMENDED	APPROVED	SHEET	OF
 Los Alamos National Laboratory Los Alamos, New Mexico 87545				
CLASSIFICATION	REVIEWER	DATE		
REQUESTING DIVISION	11057-35	DRAWING NO.	FIGURE 2	REV.
REQUESTING GROUP	EM-8			



**NOTES**

- NOTE 1: SCHEMATIC BASED ON DRAWINGS  
ENG-C51356, 51357 & R5553
- NOTE 2: MANHOLE NUMBERS OBTAINED FROM  
LANL SEWER SYSTEM DRAWING; NO  
MANHOLES NUMBERS FOUND DURING  
SITE VISIT.

**LEGEND**

- FD - FLOOR DRAIN
- M.H. - MANHOLE
- SD - SINK DRAIN
- TL - TOILET
- UR - URINAL

- DYE TESTED DRAIN

<b>SANTA FE ENGINEERING, LTD.</b>			
TA 53-898 BUILDING DRAIN SCHEMATIC		DRAWN DESIGN	MSC
		CHECKED	PEB
		DATE	5-4-92
SUBMITTED	RECOMMENDED	APPROVED	
<b>Los Alamos</b>		Los Alamos National Laboratory Los Alamos, New Mexico 87545	
		SHEET	OF
CLASSIFICATION	REVIEWER	DATE	
REQUESTING DIVISION	DRAWING NO.	REV.	
REQUESTING GROUP EM-8	11057-35	FIGURE 3	