From: DeBruyn, Dana (DEQ)
Sent: Tuesday, November 24, 2015 2:32 PM
To: Busch, Stephen (DEQ);Madziar, Joseph (LARA)
Subject: pierce rough draft
Attachments: Photo Album Pierce.pptx; Pierce Elementary School draft.docx

I think I captured what was noted in our meetings. I placed some questions in comment bubbles and put some things in track changes, because of questions. Also, some of the explanations are not as definitive, since we do not have the under cabinet photos.

I am still not clear on where to place the copper info.

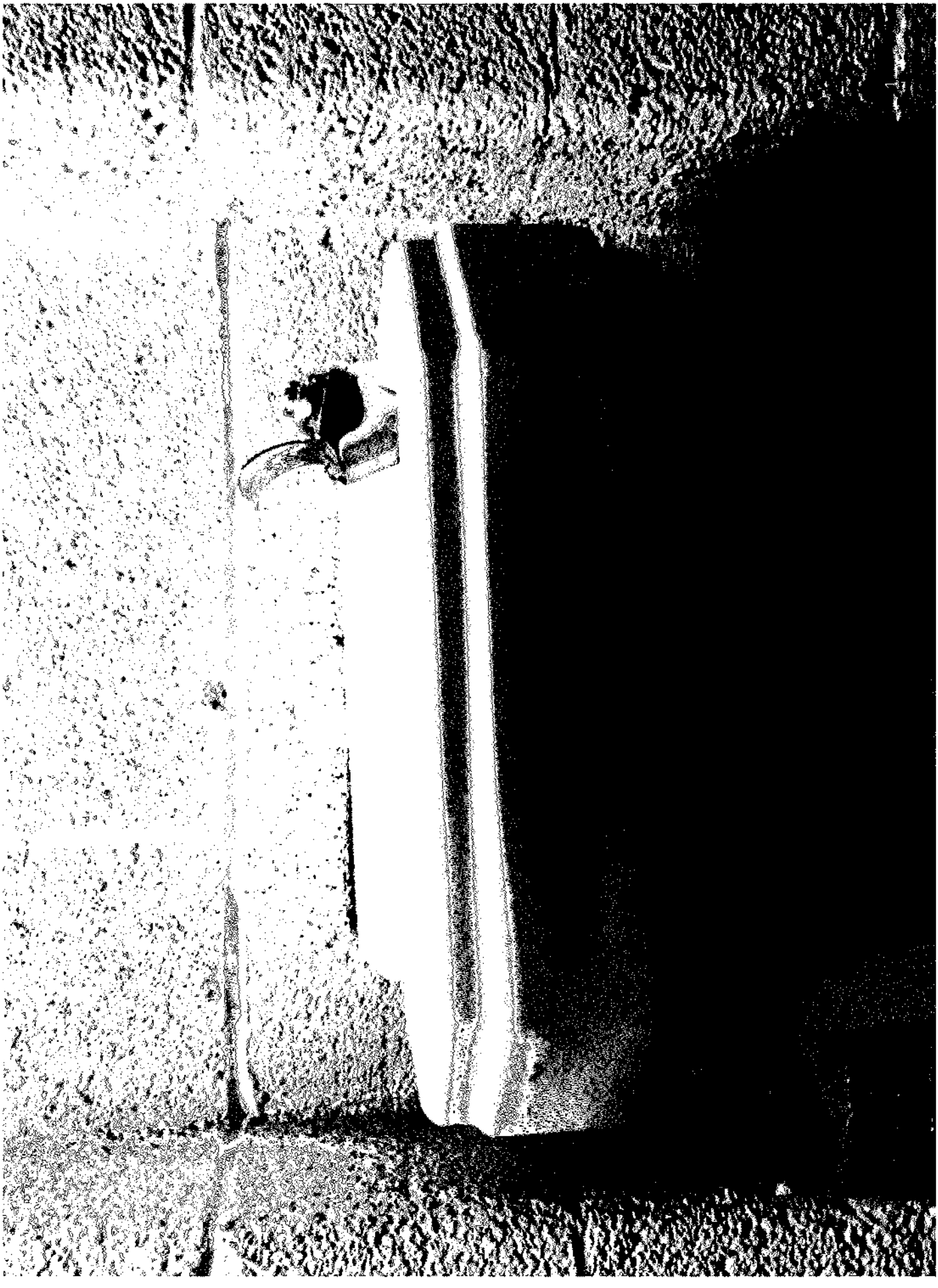
Two verse three minute flush… I kept them consistence at 3 minutes, so not to get too confusing in the message.

NOTE: I could not figure out inserting the photos and wrapping the text. I will have someone else do this. I have placed all the photos in powerpoint in order. For example, Slide 1 is DW001 and Slide 32 is CF032.

Send me an email, type in your changes, or call me and I will make them.

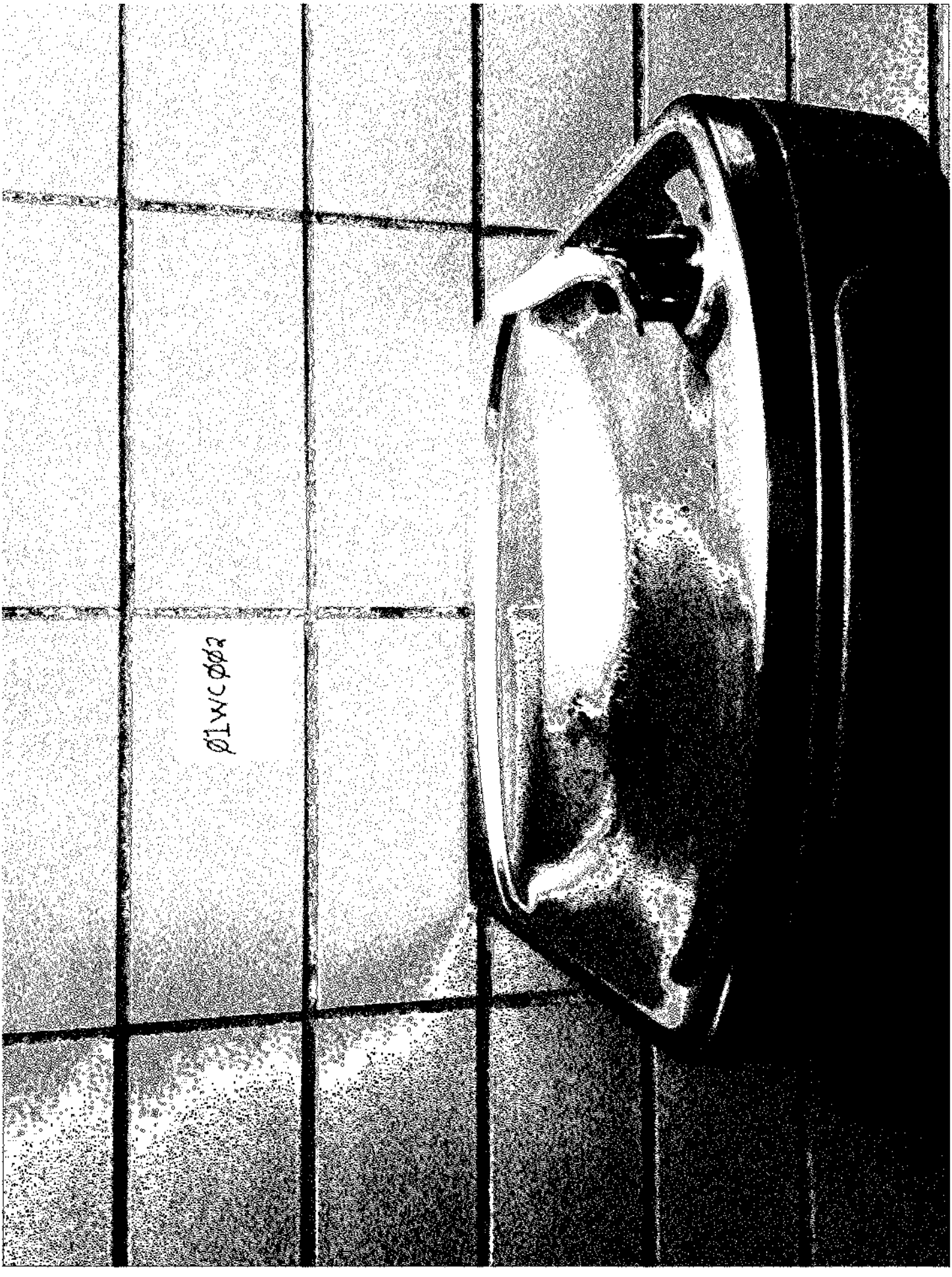
I wanted to give you the first look before sending it to George.

Dana



[Speaker Notes For Slide: 1]

01dw001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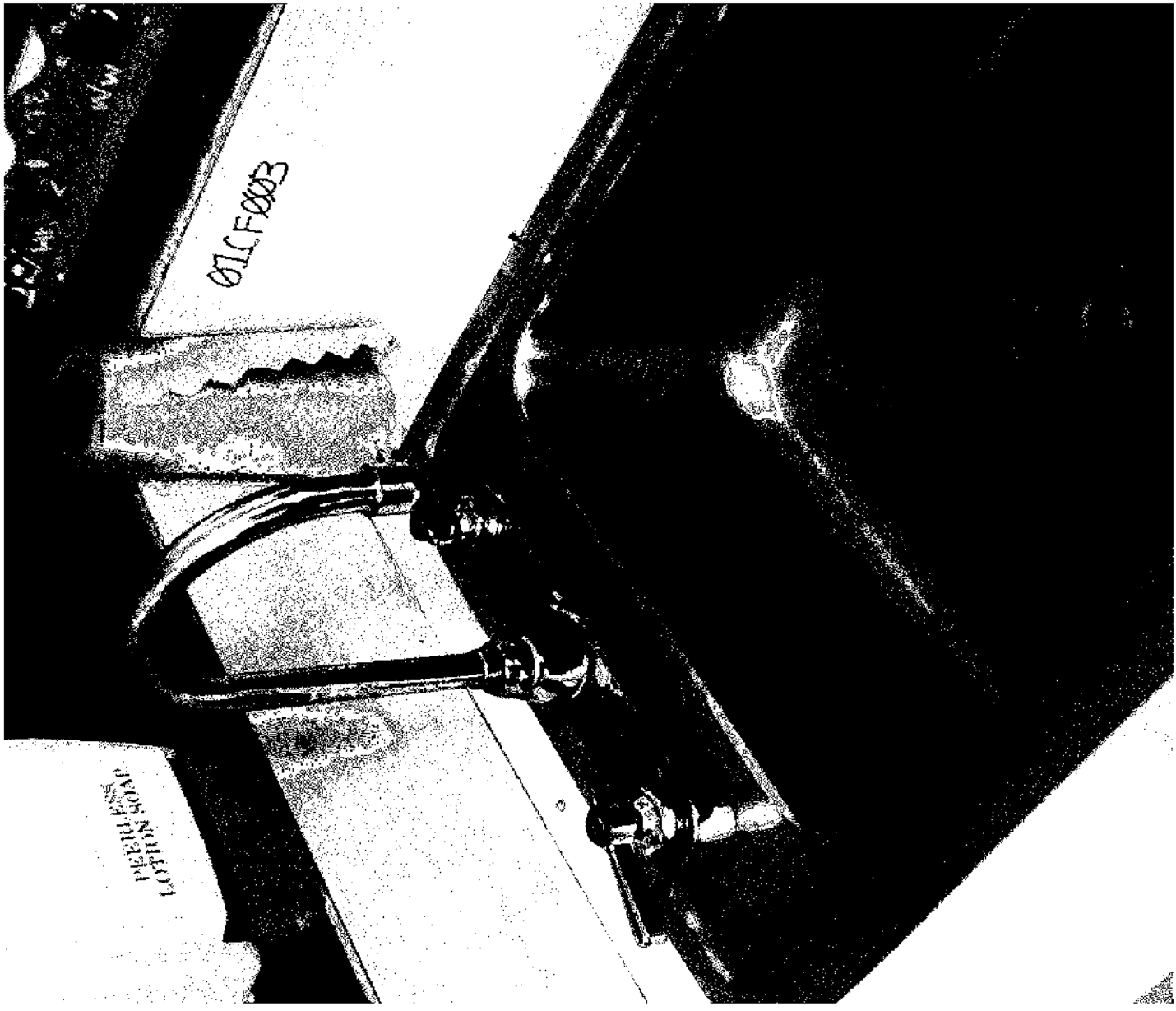
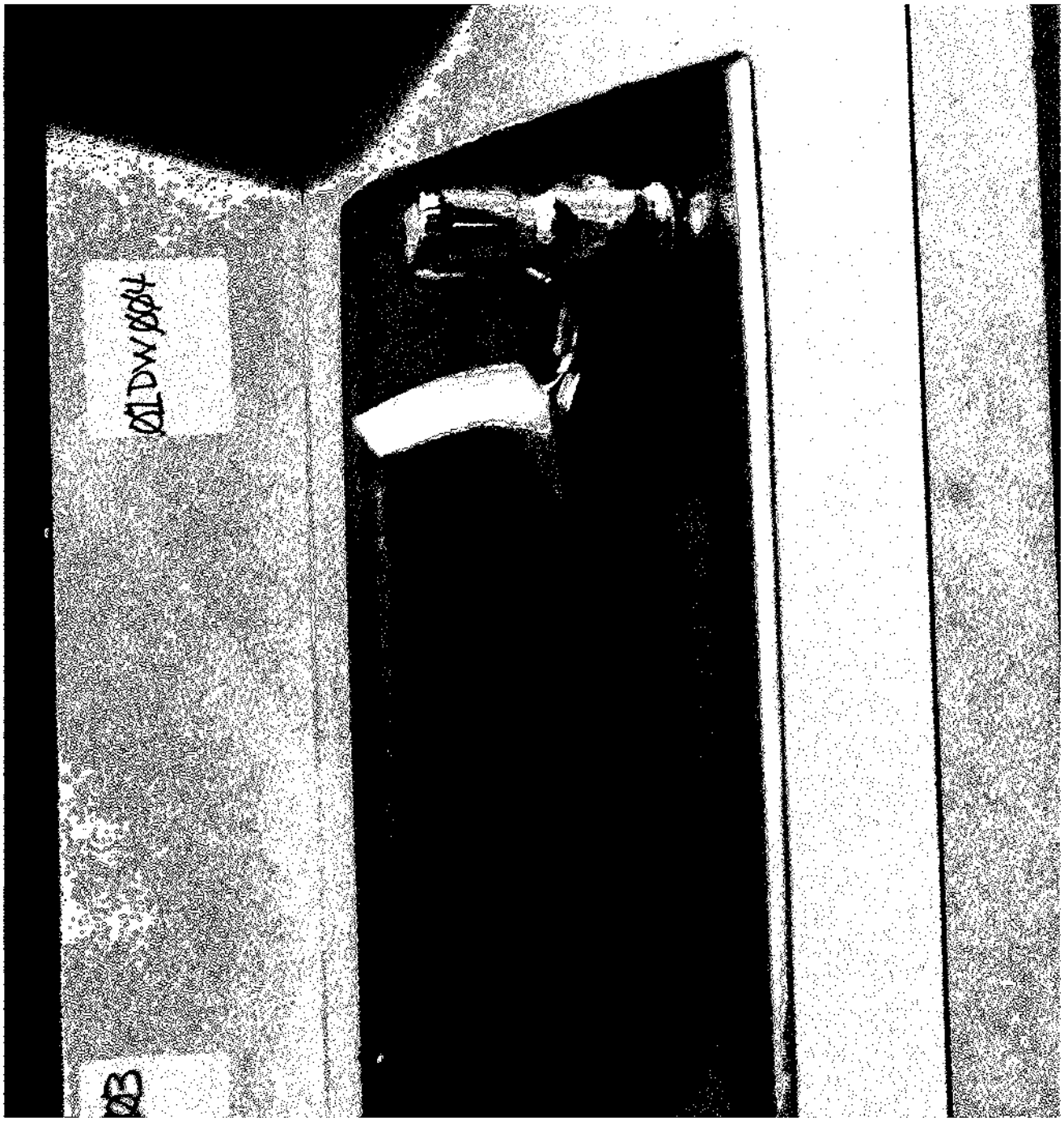
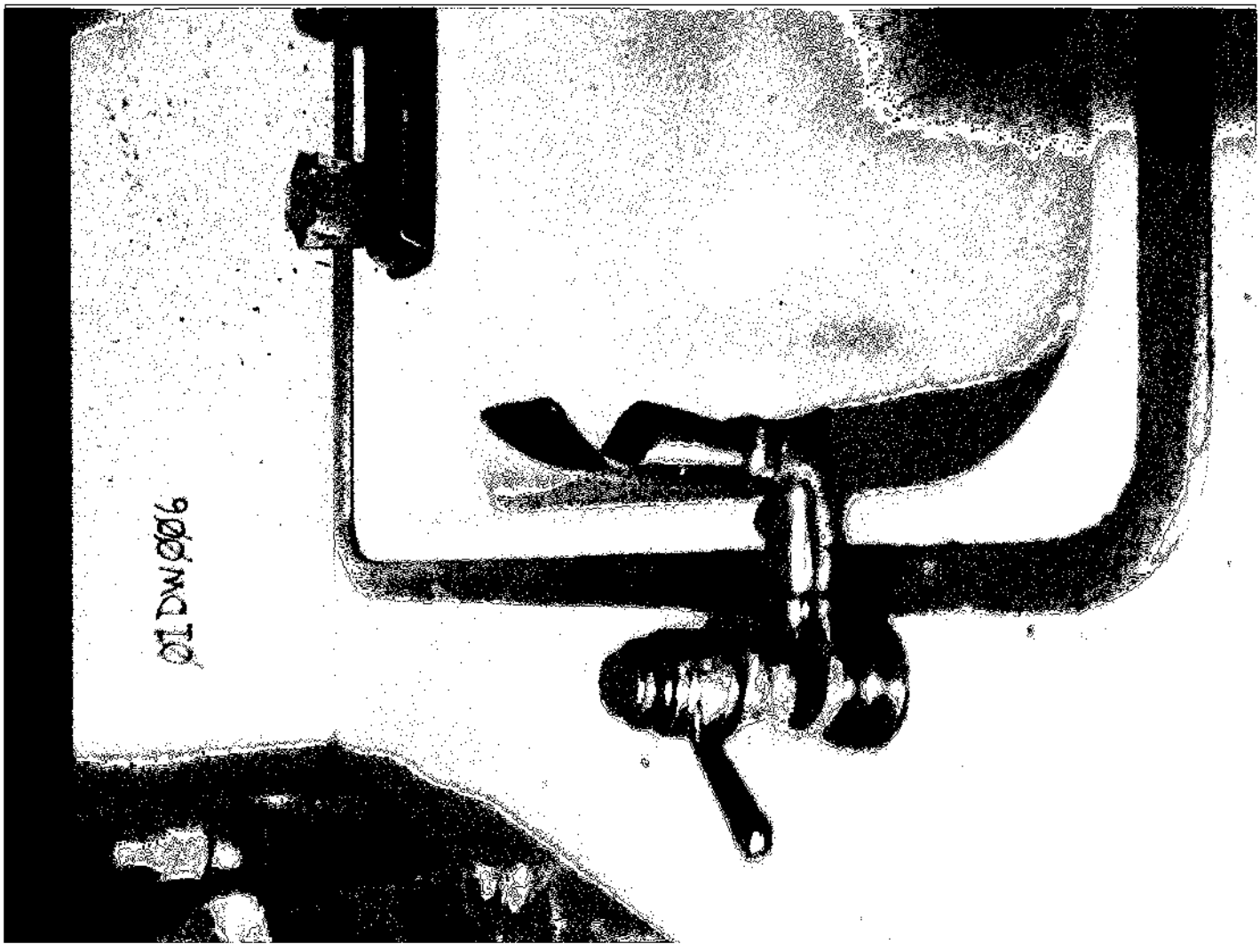

PETROLEUM
LOTION SOAP


01 DW 0004
QB

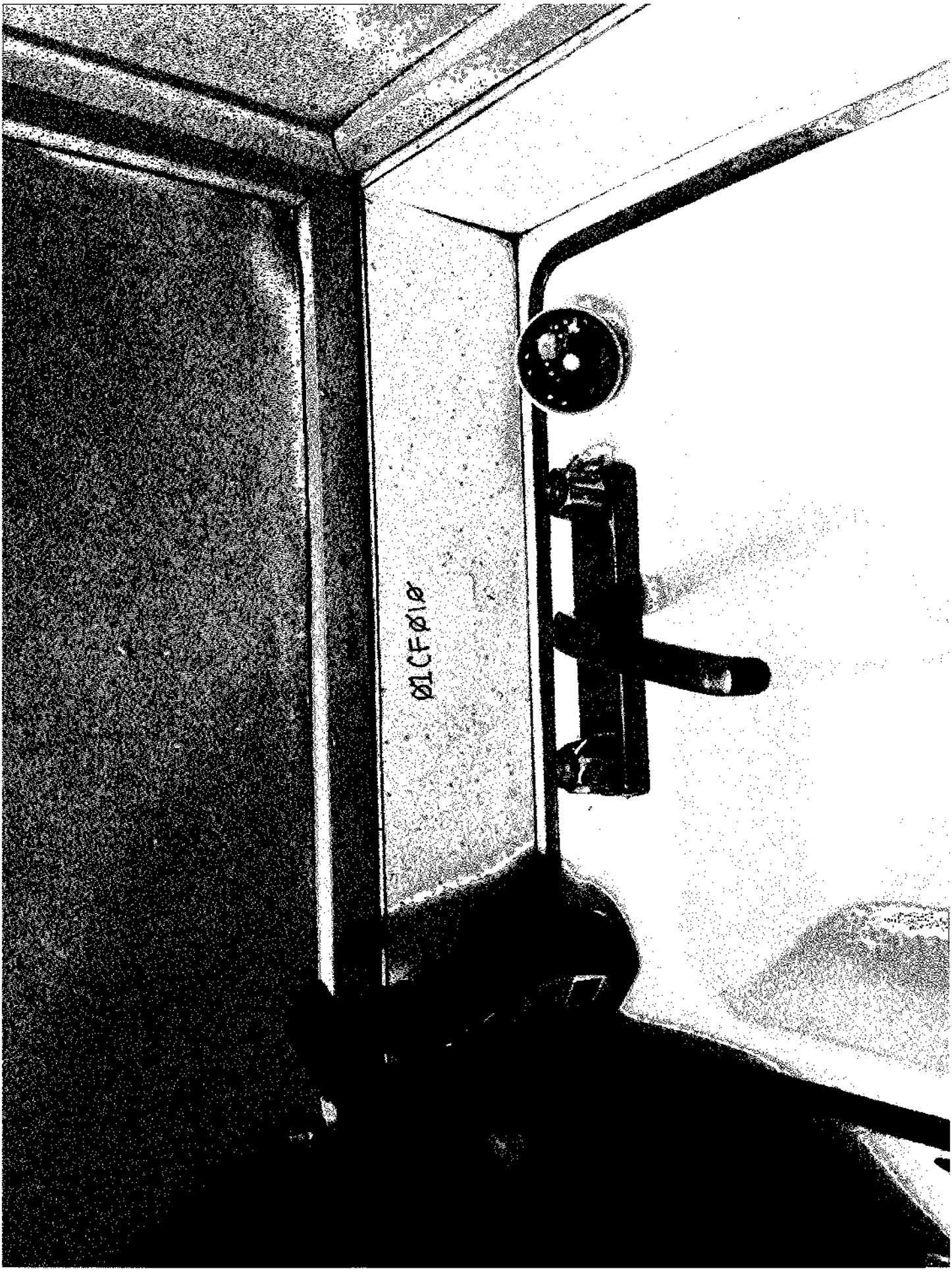

01CF005


01 DW 0016

CIRCLE
OVAL
HEART
RECTANGLE
OCTAGON

01DW008

10


ØICFØIØ


I use soap and water.
BLUE ORANGE GREEN PURPLE
RED
BLUE ORANGE GREEN PURPLE
ORANGE
Ø1CFØ11
Yamiyah
nesis

SUN

14

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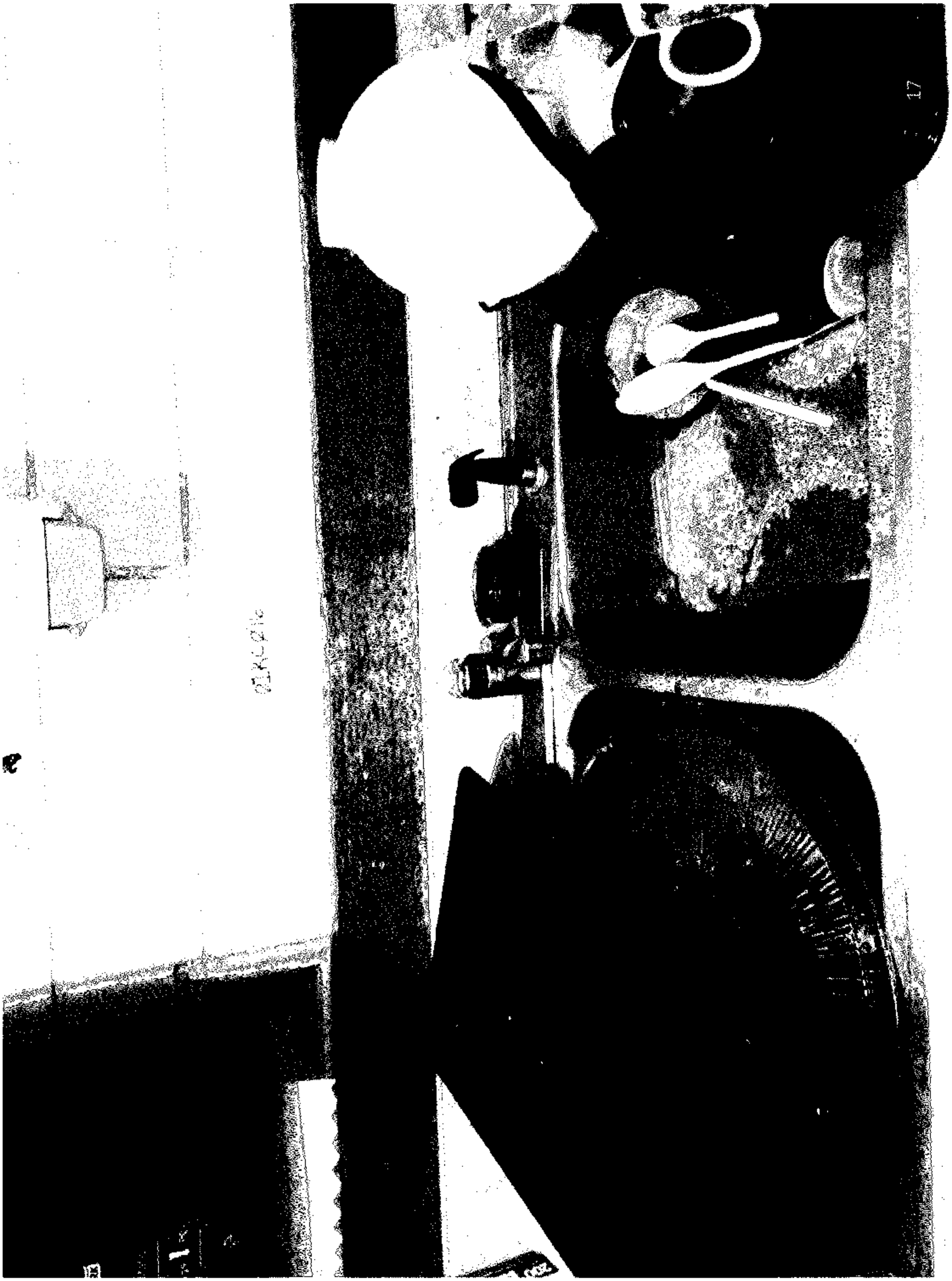
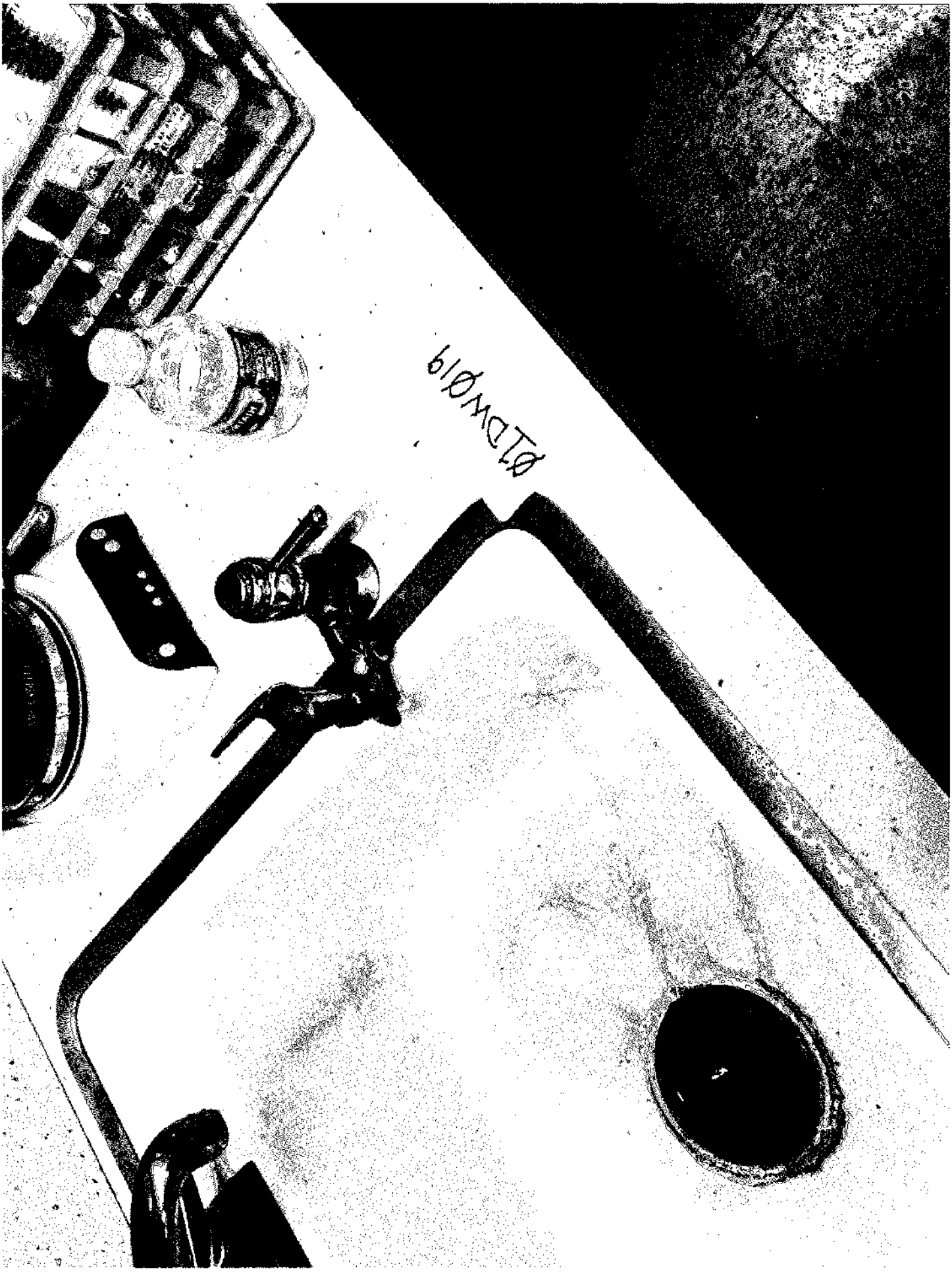
000739



01CF818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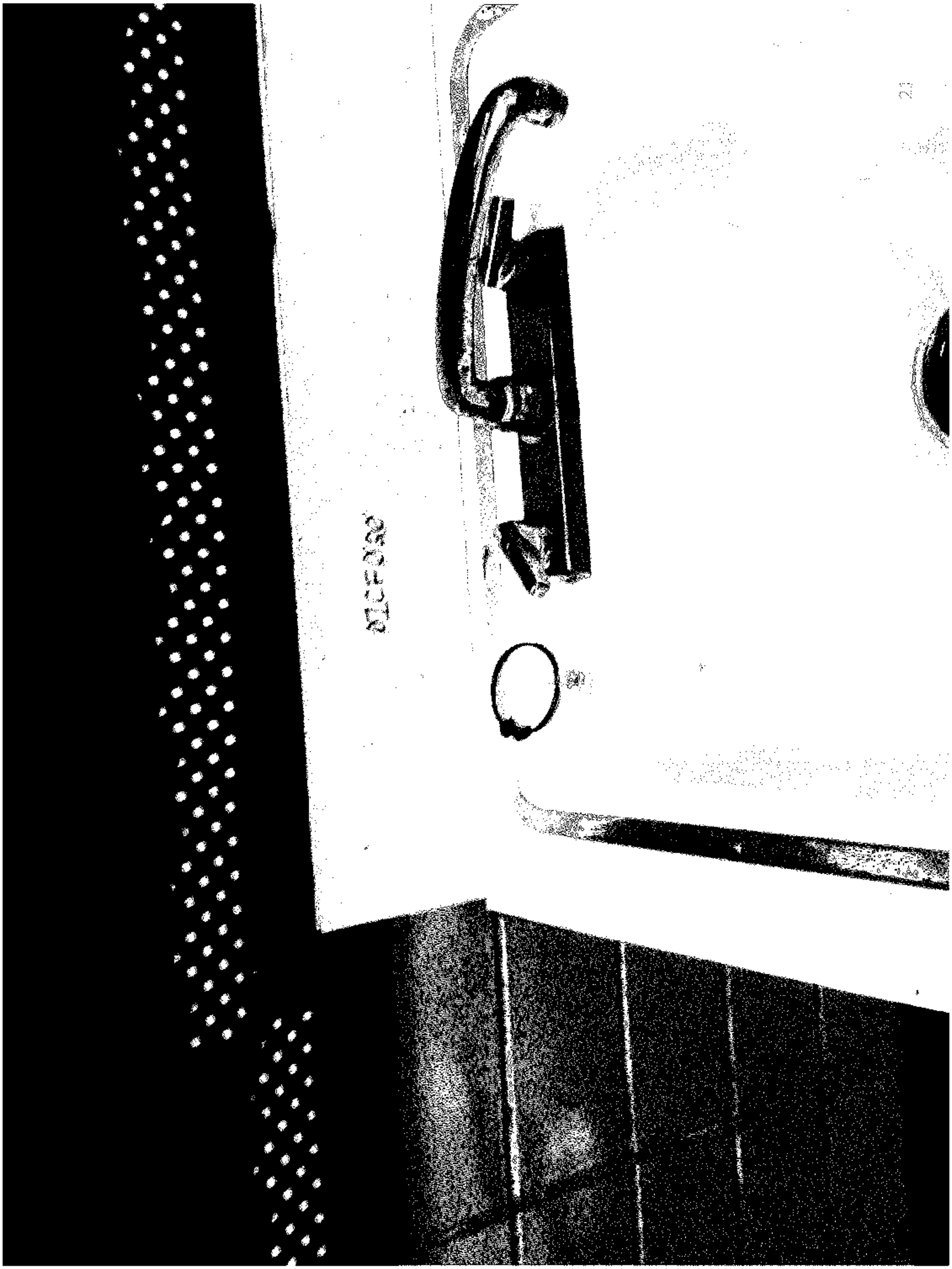


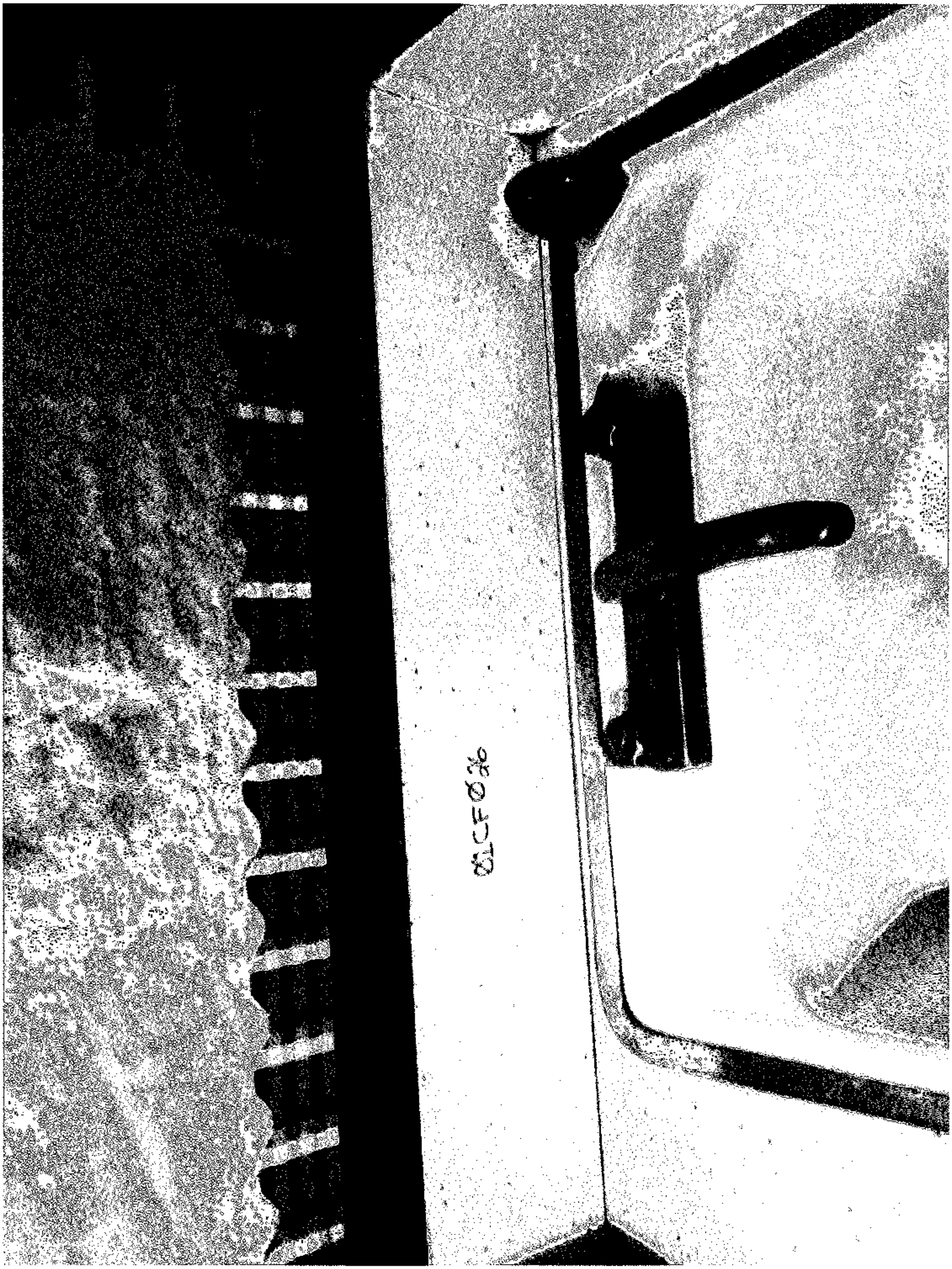
ØICFØ21

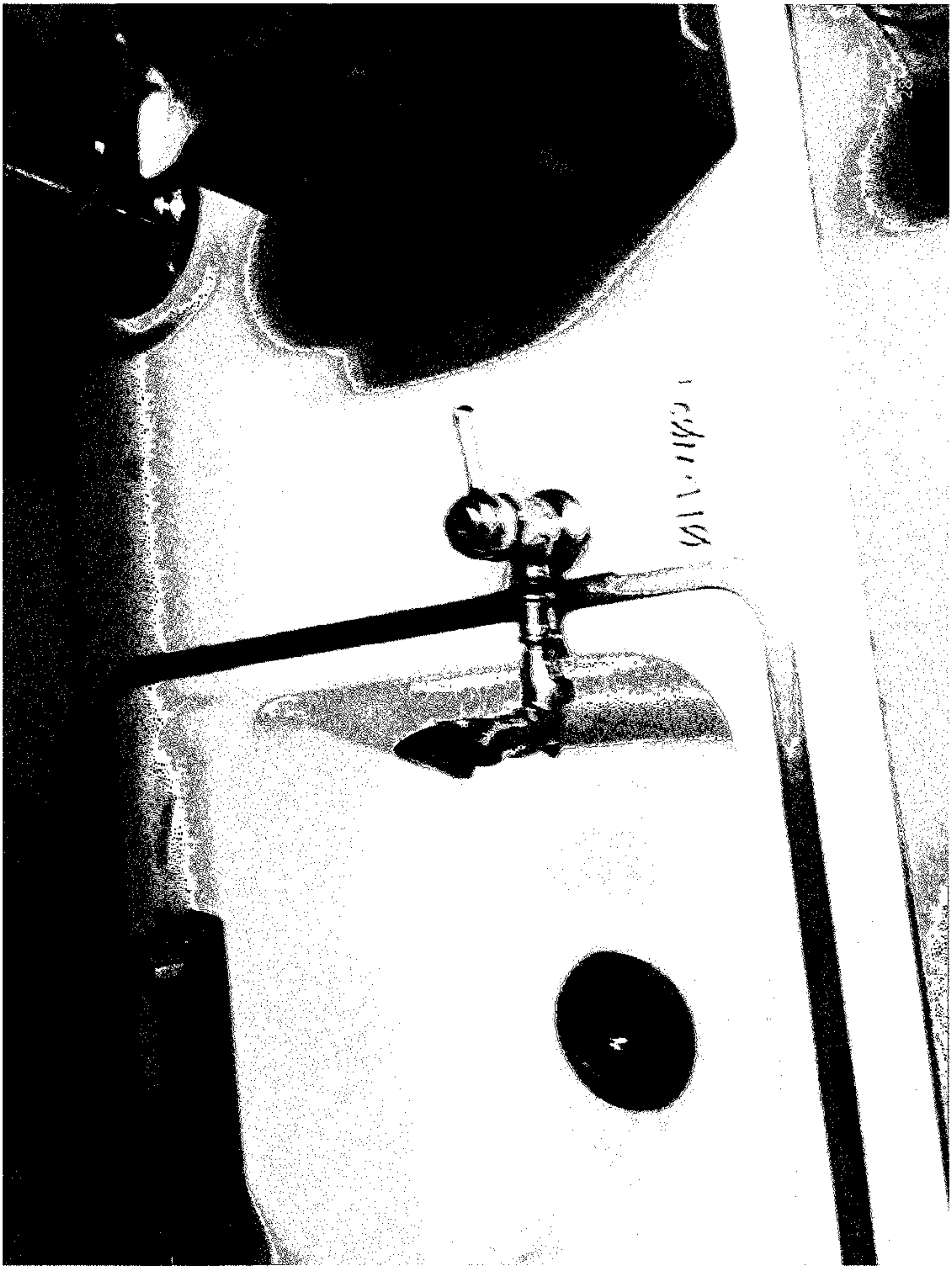
DIAMON
RATTLES
ARD WABER
Ø1DW/Ø22

24
MLCF023

25

Edward

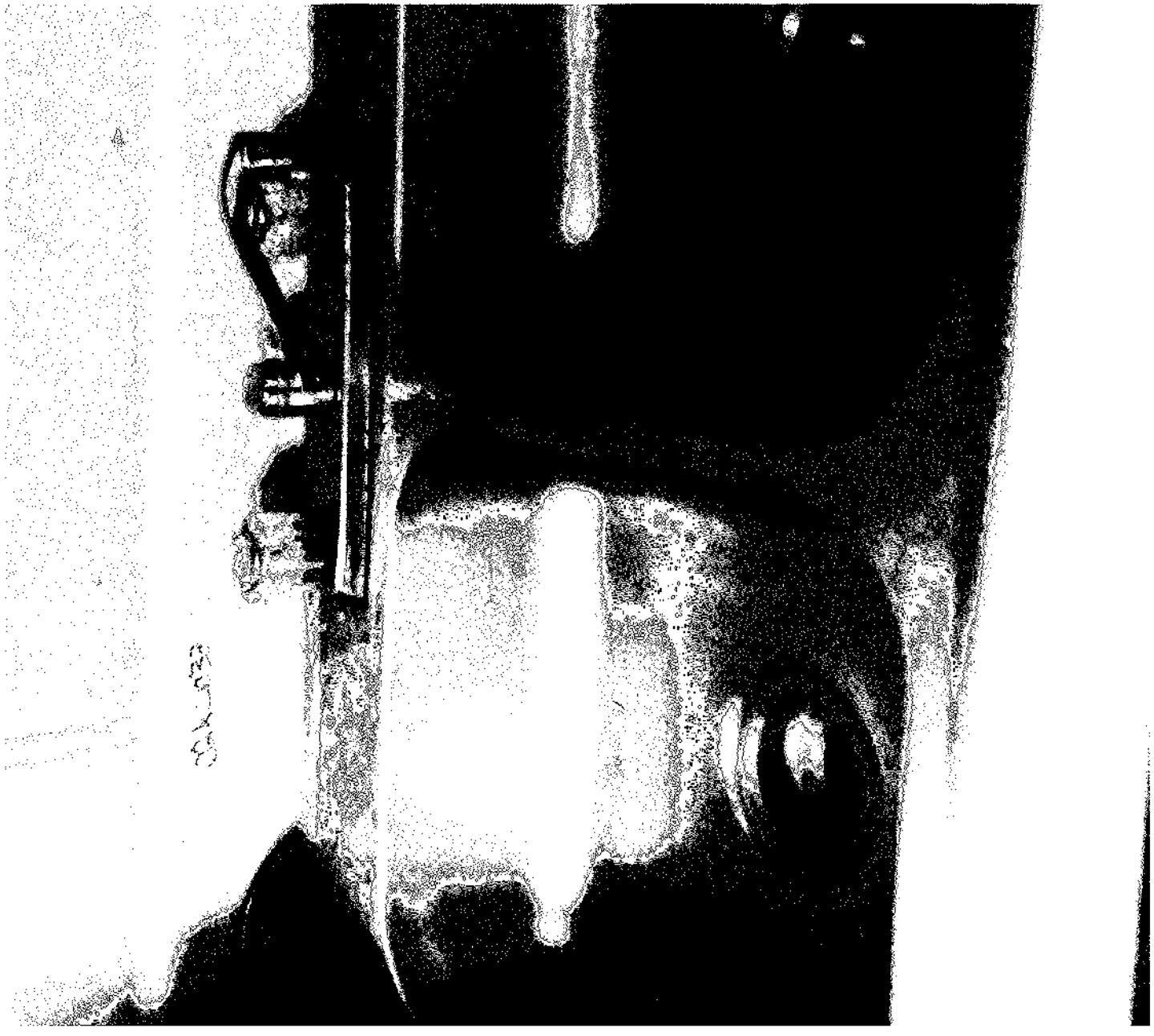


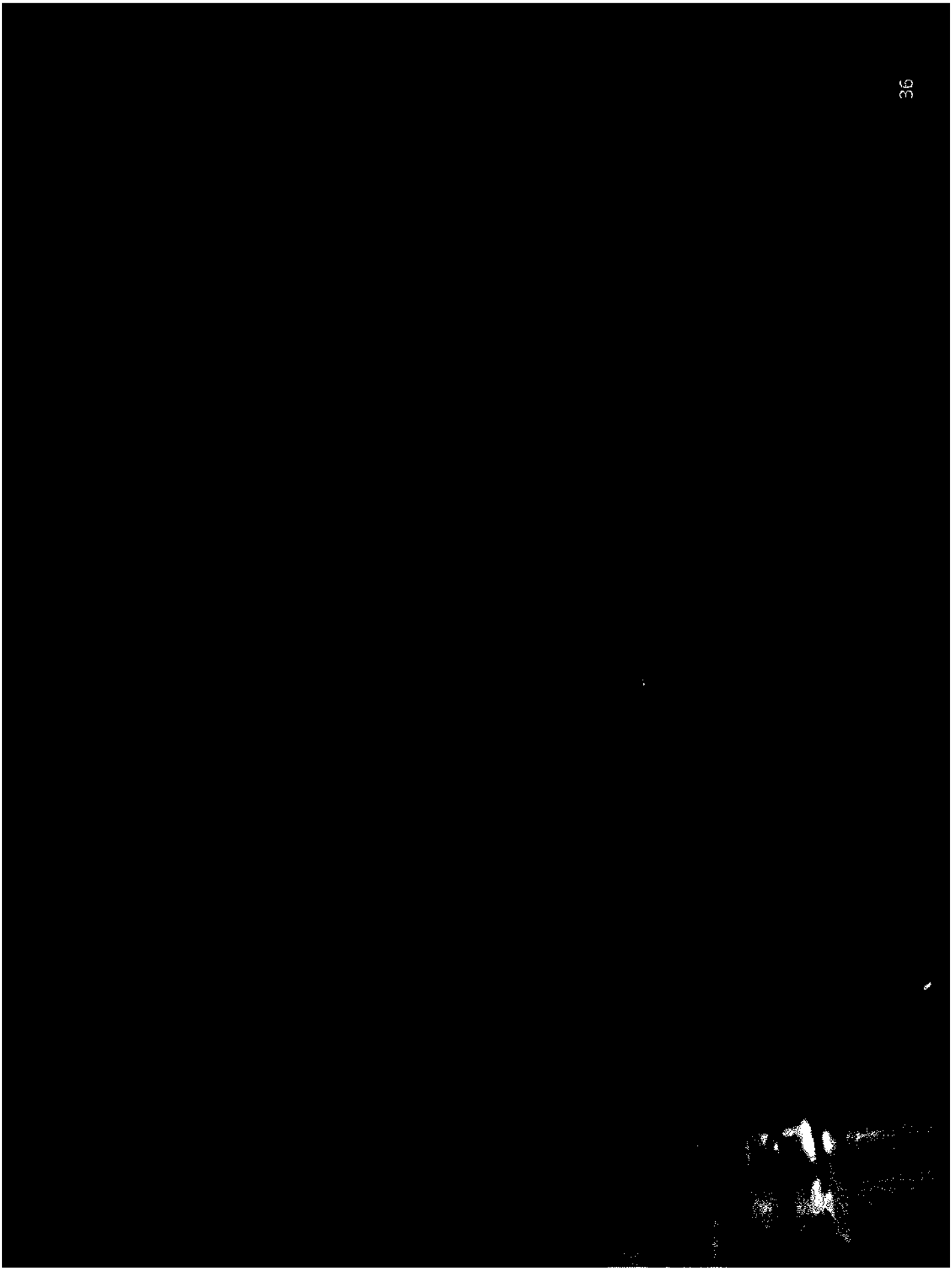


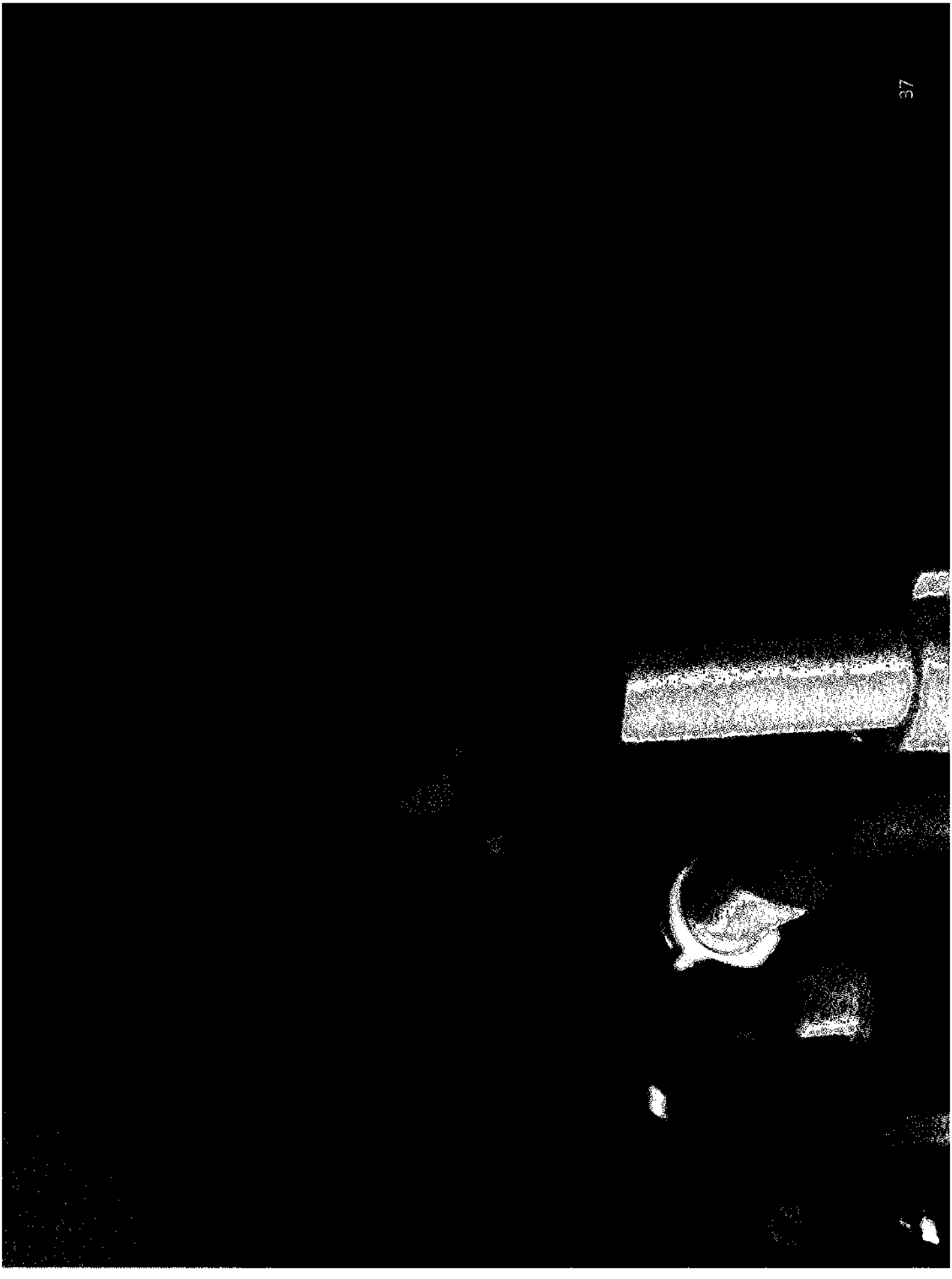
81DW021

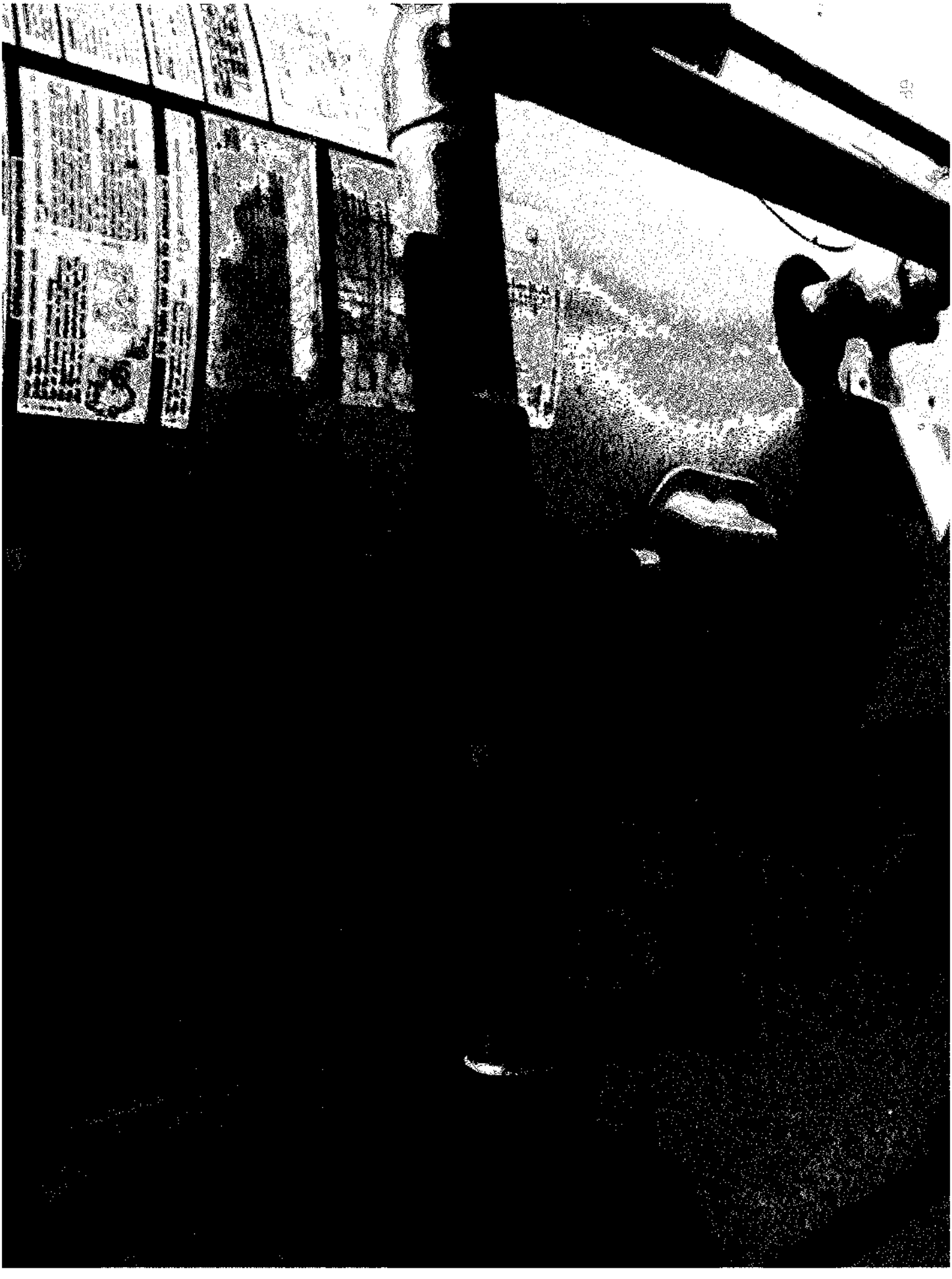

B1 DW1031


01CF032




36


37



40

Pierce Elementary School
Outlet Sampling and Plumbing Assessment Recommendations

1101 West Vernon Drive, Flint, Michigan 48503

Background Information

On Friday, November 6, 2015, the Department of Licensing and Regulatory Affairs (DLARA) and the Department of Environmental Quality (DEQ) conducted an assessment of Pierce Elementary School's plumbing system to gain a comprehensive understanding of how water moves through the building and what types of plumbing materials are used. One outlet building in addition to the main school building was included in the assessment. The assessment identified the following potential sources of lead leaching into drinking water:

- Lead solder joints on copper piping
- Brass valves and brass fittings
- Brass components in fixtures
- Galvanized piping

The assessment also identified 34 faucets or fountains that provide water for drinking, cooking, and/or food preparation, 32 faucets/fountains in the main school building, and two faucets/fountains in the southernmost out building. The other two outbuildings had no working water fixtures. The team developed a sequence for sampling the faucets/fountains in each building based on how the water travels through each building.

On Saturday, November 7, 2015, the DEQ and the DLARA completed sampling of the 32 faucets/fountains in the main school building, and the two faucets/fountains in the southernmost out building, each in the order determined by the plumbing assessment from the previous day, following a stagnation period of over 12 hours. At each of the 34 faucets/fountains identified, staff collected four samples. Two initial, 125-milliliter samples (P1 and P2), were collected immediately after turning on the tap. The water was then flushed for 30 seconds and a third, 125-milliliter sample (F01) was collected. Finally, the water was flushed for another two minutes, and the fourth 125-milliliter sample (F02) was collected. These samples were used to determine the impact of any lead sources in and around each specific faucet/fountain and its connecting plumbing.

The DEQ and the DLARA then completed consecutive sampling at four of the 32 faucets/fountains in the main school building, and one of two faucets/fountains in the southernmost out building. This consecutive sampling was used to determine the impact of any lead sources located deep in the supply plumbing at each of these buildings. The three sites in the main school building included one site near the building service line, one site at the far northerly end of the plumbing system, and one site at the far southerly end of the plumbing system. At each of these four sites, staff collected 10, 1-liter samples. The 10 samples were collected immediately after turning on the tap, and consecutively, without any flushing time in between.

Comment [DLD1]: Or is this being designated as the midpoint? 01CF018 ROOM 301

Water Service Information

A four-inch diameter cast iron or ductile iron water service line enters the boiler room. The boiler room is located near the middle of the west side of the main building. The water line enters on the south side of the room. Piping in the boiler room for the cold water transitions into copper piping. In one area exposed from under pipe insulation, what appeared to be a lead bushing was observed. The cold water supply line exits the boiler room. It appears that beyond the boiler room, a cold water line heads towards the north corridor, and one heads towards the south corridor.

Comment [DLD2]: Correct size?

The middle and southerly most out building is believed to be served from the main building. The skirting of the unit prohibited any assessment of the service line to this building. The northern most out building was not assessed due to its discontinued use.

Outlets With Lead Levels Greater Than 15 Parts per Billion

The DEQ recommends school facilities take action if samples from any drinking water outlets show lead levels greater than 15 parts per billion. Based on the sampling conducted at 34 faucets/fountains on November 7, 2015, the following 25 drinking water outlets had lead water level results greater than 15 parts per billion. Each of these 25 outlets is listed below with its sample results, including a description of the potential source(s) of lead, and recommended actions for the school to take.

Outlet: Bubbler Drinking Fountain, (01DW001)
Location: Hallway next to Boiler Room, behind Stage
Results: P1=20 parts per billion, P2=2 parts per billion,
F01=2 parts per billion, F02=non-detect

These results suggest the highest contribution of lead may be from the bubbler itself. This bubbler fixture is made of chrome-plated brass and brass valve. The connection piping with the unit may also contain some brass components.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Water Cooler Fountain (01WC002)
Location: Hallway north corridor, next to Mechanical Room
Results: P1=8 parts per billion, P2=13 parts per billion,
F01=35 parts per billion, F02=19 parts per billion

These results suggest the lead may be from the water cooler unit and the connecting plumbing. The water cooler is an Elkay model. This model may contain brass components. Connecting plumbing to the cooler unit may also contain brass components.

This water cooler fountain should not be used. The entire unit and connecting plumbing should be replaced.

Outlet: Sink Faucet (01CF003)
Location: Classroom 109, northeast wall
Results: P1=26 parts per billion, P2=17 parts per billion,
F01=9 part per billion, F02=2 parts per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. The faucet is chrome-plated brass, and has a brass tube in the body of the base on the underside of the sink. Connecting plumbing in the cabinet under the sink may also contain additional brass components.

This faucet also has an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

~~If the faucet is not replaced, the aerator/screen should be removed, inspected for particulate~~ accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator/screen should be periodically checked and cleaned. Generally, aerators should be cleaned at least ~~quarterly to remove scale, particulate accumulation, and bacteria.~~

Comment [DLD3]: Moved to end

Outlet: Bubbler Fountain (01DW004)
Location: Classroom 109, northwest wall
Results: P1=42 parts per billion, P2=17 parts per billion,
F01=3 parts per billion, F02=1 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Typically, the connecting plumbing is copper with lead solder and includes a brass shut-off valve.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF007)
Location: Classroom 108, northwest wall
Results: P1=97 parts per billion, P2=132 parts per billion,
F01=9 parts per billion, F02=2 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW008)
Location: Classroom 108, northwest wall
Results: P1=468 parts per billion, P2=75 parts per billion,
F01=6 parts per billion, F02=4 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible,

sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW009)
Location: Classroom 111, northeast wall
Results: P1=26 parts per billion, P2=38 parts per billion,
F01=7 parts per billion, F02=3 part per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF 010)
Location: Classroom 111, northeast wall
Results: P1=43 parts per billion, P2=22 parts per billion,
F01=3 parts per billion, F02=3 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF011)
Location: Classroom 107, southwest wall
Results: P1=25 parts per billion, P2=11 parts per billion,
F01=3 parts per billion, F02=2 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

The sink was found with the aerator removed.

Replacement of this sink faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW012)
Location: Classroom 112, southwest wall
Results: P1=78 parts per billion, P2=11 parts per billion,
F01=4 part per billion, F02=3 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF018)
Location: Classroom 301, northwest wall
Results: P1=13 parts per billion, P2=16 parts per billion,
F01=4 parts per billion, F02=1 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is showing some fading down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW019)
Location: Classroom 302, southwest wall
Results: P1=22 parts per billion, P2=23 parts per billion,
F01=3 part per billion, F02=2 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. The bubbler also has a chrome-plated brass flow regulator installed between the operating valve and the outlet. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF020)
Location: Classroom 302, southwest wall
Results: P1=53 parts per billion, P2=30 parts per billion,
F01=1 parts per billion, F02=non-detect

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF021)
Location: Classroom 306, southwest wall
Results: P1=15 parts per billion, P2=50 parts per billion,
F01=8 parts per billion, F02=3 parts per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW022)
Location: Classroom 306, southwest wall
Results: P1=17 parts per billion, P2=6 parts per billion,
F01=4 part per billion, F02=13 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Typically, the connecting plumbing is copper with lead

solder and includes a brass shut off valve. The bubbler also has been modified which added copper couplings before the spout.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes.

Comment [DLD4]: True statement at 13 after flush.

Outlet: Sink Faucet (01CF023)
Location: Classroom 312, southeast wall
Results: P1=22 parts per billion, P2=14 parts per billion,
F01=9 parts per billion, F02=6 parts per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Chicago Specialty model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW024)
Location: Classroom 312, southeast wall
Results: P1=36 parts per billion, P2=8 parts per billion,
F01=6 part per billion, F02=4 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. The bubbler also has a chrome-plated brass flow regulator installed between the operating valve and the outlet. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW025)
Location: Classroom 307, southwest wall
Results: P1=191 parts per billion, P2=69 parts per billion,
F01=28 part per billion, F02=6 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome plated brass and has a brass connector on the underside of the sink. Typically, the connecting plumbing is copper with lead solder and includes a brass shut off valve.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (01CF 026)
Location: Classroom 307, southwest wall
Results: P1=61 parts per billion, P2=36 parts per billion,
F01=7 parts per billion, F02=4 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is worn down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW027)
Location: Classroom 311, southeast wall
Results: P1=23 parts per billion, P2=19 parts per billion,
F01=61 part per billion, F02=20 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing.
The results from this bubbler and the results from similar fixtures suggest that this bubbler and the connecting plumbing may be contributing to an elevated lead result. Additionally, it appears that elevated results may be a result of water stagnation. The results from this bubbler and sampling at 01CF28, along with the consecutive sampling results at 01CF032 (room 310) suggest that stagnation of water in this corridor after the washroom facilities is a contributing factor.

This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure from the fixture. ~~at this location.~~ Do not use this bubbler. ~~If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.~~

Comment [DLDS]: Delete and replace with do not use. Flushing program . Retesting?

Outlet: Sink Faucet (01CF 028)
Location: Classroom 311, southeast wall
Results: P1=17 parts per billion, P2=19 parts per billion,
F01=38 parts per billion, F02=15 part per billion

~~These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing~~The results from this sink faucet and the results from similar fixtures suggest that this faucet may be contributing to an elevated lead result. Additionally, it appears that elevated results may be a result of water stagnation. The results from the sink faucet and sampling at 01DW031 and 01CF032 (sampling fixtures on the other side of the wall) along with the consecutive sampling results at 01CF032 (room 310) suggest that stagnation of water in the south corridor after the washroom facilities is a contributing factor.

This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is worn down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will ~~significantly~~ reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation, in combination with line flushing, ~~-~~is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW029)
Location: Classroom 308, northwest wall
Results: P1=78 parts per billion, P2=23 parts per billion,
F01=5 part per billion, F02=2 parts per billion

Comment [DLD6]: Photo 01dw0219

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Typically, the connecting plumbing is copper with lead solder and includes a brass shut off valve. The bubbler also has been modified which added copper couplings before the spout.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes.

Outlet: Sink Faucet (01CF030)
Location: Classroom 308, northwest wall
Results: P1=60 parts per billion, P2=9 parts per billion,
F01=11 parts per billion, F02=3 part per billion

These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. This fixture appears to be a Central Brass model. The base of this faucet is chrome-plated brass, and has a brass tube within the base and a brass spout. The chrome finish on this fixture is worn down to the brass. Connecting plumbing in the cabinet under the sink should be checked for brass connectors; copper piping with lead solder, and brass shut-off valves.

This faucet also appears to have an aerator/screen at the outlet.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Bubbler Fountain (01DW031)
Location: Classroom 310, northeast wall
Results: P1=29 parts per billion, P2=35 parts per billion,
F01=73 part per billion, F02=3 parts per billion

These results suggest the highest contribution of lead may be from the bubbler and its connecting plumbing. This bubbler fixture is made of chrome-plated brass and has a brass connector on the underside of the sink. Connecting plumbing in the cabinet under the sink should be checked for brass components and copper piping with lead solder.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Water Cooler (02DW034)
Location: South Out Building, Temporary Classroom, Northeast wall
Results: P1= non-detect, P2=54 parts per billion,
F01=36 part per billion, F02=2 parts per billion

These results suggest the lead may be from the water cooler unit. This model may contain brass components. Connecting plumbing to the cooler unit may also contain brass components.

The P2 and F01 results for lead along with elevated copper results of 1.77 parts per million suggest that this water cooler fountain should not be used. The entire unit and connecting plumbing should be replaced.

Outlets With Lead Levels 15 Parts per Billion or Less

While the remaining nine outlets showed sample results to be at levels requiring no further action, several recommendations have been identified.

The fourth sample (F02) at all 43 outlets following approximately 3 minutes of use and flushing ~~at a reduced flow resulted in reduced lead concentrations of 3 parts per billion or less. This~~ indicates that flushing of all taps used for drinking, cooking, and/or food preparation for 4 minutes following periods of stagnation will further reduce lead exposure.

~~Seventeen~~ Five of these nine outlets are comprised of similar materials as the outlets listed above and could potentially experience higher lead levels under extended periods of stagnation. These faucets/fountains include:

- Bubbler Unit drinking fountain in main corridor next to men's washroom, east of library (01DW017), and Classroom 100 (01DW015)
- Sink Side Bubbler Units in Classroom 110 (01DW006),
- Chrome-Plated Brass Base Faucets in Classroom 100 (01CF013), and Classroom 310 (01CF032)
-

Replacement of these fixtures listed above with lead-free materials is also recommended.

The remaining four outlets showed sample results of 15 parts per billion or less, requiring no further action or additional recommendations. These faucets/fountains include:

- Sink Faucet (older Delta model) in Classroom 110 (01CF005), Temporary Classroom (south) (02KC033)
- Sink Faucet, spring loaded, in Classroom 100 (01CF014)
- ----
- Kitchen Faucet (American Standard)s in the Teacher's Lounge (01KC016)

Consecutive Sampling Results and Building Plumbing Recommendations

The consecutive samples taken on November 7, 2015, at sites in the main school building, and one in the southernmost out building, provide additional confirmation that overall the highest contribution of lead appears to be from the individual faucet/fountains and not from the larger diameter supply plumbing within the main school building or the out building units.
Results of the consecutive sample monitoring are listed in the table below.

Consecutive Sample No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Location	Lead Result (parts per billion; ND = not-detected)									
Classroom 100 Sink Faucet (01CF013)	2	2	2	2	2	2	2	2	3	3
Classroom 301 Sink Faucet (01CF018)	4	2	2	2	1	1	1	1	1	ND
Classroom 310 Sink Faucet (01CF032)	4	5	6	4	3	3	3	3	3	2
Out Building Southerly Kitchen Faucet (01KC033)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Routine flushing of the larger diameter supply plumbing at the end points of the distribution system, (for example at room 100 and room 310) is strongly recommended. This is due to the noticeable stagnation of the water and minimal use of the water, especially in the south end of the corridor that extends beyond the restrooms. It is recommended that a flushing operational procedure be developed for use by staff responsible for plumbing operations and maintenance with emphasis on flushing after weekends and holidays.

Comment [DLD7]: Required?

Many faucets have an aerator/screen at the outlet. If the faucet is not replaced, the aerator/screen should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator/screen should be periodically checked and cleaned. Generally, aerators should be cleaned at least quarterly to remove scale, particulate accumulation, and bacteria.

Comment [TJD8]: Suggest moving paragraph to after replacement language in addition to adding language change to each portion of the document that references faucets with aerators.

Copper...what to do with all results?

From: DeBruyn, Dana (DEQ)
Sent: Thursday, December 17, 2015 12:43 PM
To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: Assessment form
Attachments: Plumbing assessment check list.docx

I made some minor changes since Friday, based on our experiences. This is the most recent version.

From: Busch, Stephen (DEQ)
Sent: Thursday, December 17, 2015 11:18 AM
To: DeBruyn, Dana (DEQ)
Subject: Assessment form

Dana,

Can you email me a copy of the checklist form you have been using for the school assessments.

Stephen Busch, P.E.
MDEQ Lansing District Coordinator
Office of Drinking Water and Municipal Assistance
Lansing and Jackson District Supervisor
517-643-2314
buschs@michigan.gov

SAMPLE NUMBER	SEQ #	FIXTURE	UNDERNEATH
		☐ Aerator/screen ☐ None ☐ Chrome plated brass ☐ Brass tube in base ☐ Regulator at bubbler	☐ Brass connection ☐ Brass fittings ☐ Brass valves ☐ Brass T ☐ Copper w/ lead solder ☐ Copper w/ 95/5 solder ☐ Stainless ☐ Nylon/PEX
PHOTO NUMBER(S)			
BRAND/STYLE ☐ Bubbler ☐ Central Brass ☐ Chicago Specialty ☐ Delta 400 ☐ Delta 350 ☐ Two handled Delta ☐ Bar faucet ☐ Water cooler _____ ☐ _____		OTHER INFO ☐ Underneath inaccessible ☐ Leaking/dripping ☐ Modified fixture ☐ Fixture wear/discoloration ☐ Cold runs hot ☐ Not working-do not label	NOTES

SAMPLE NUMBER	SEQ #	FIXTURE	UNDERNEATH
		☐ Aerator/screen ☐ None ☐ Chrome plated brass ☐ Brass tube in base ☐ Regulator at bubbler	☐ Brass connection ☐ Brass fittings ☐ Brass valves ☐ Brass T ☐ Copper w/ lead solder ☐ Copper w/ 95/5 solder ☐ Stainless ☐ Nylon/PEX
PHOTO NUMBER(S)			
BRAND/STYLE ☐ Bubbler ☐ Central Brass ☐ Chicago Specialty ☐ Delta 400 ☐ Delta 350 ☐ Two handled Delta ☐ Bar faucet ☐ Water cooler _____ ☐ _____		OTHER INFO ☐ Underneath inaccessible ☐ Leaking/dripping ☐ Modified fixture ☐ Fixture wear/discoloration ☐ Cold runs hot ☐ Not working-do not label	NOTES

PHOTO NUMBER(S)		
BRAND/STYLE ☐ Bubbler ☐ Central Brass ☐ Chicago Specialty ☐ Delta 400 ☐ Delta 350 ☐ Two handled Delta ☐ Bar faucet ☐ Water cooler _____ ☐ _____	**OTHER INFO** ☐ Underneath inaccessible ☐ Leaking/dripping ☐ Modified fixture ☐ Fixture wear/discoloration ☐ Cold runs hot ☐ Not working-do not label	**NOTES**

SAMPLE NUMBER	SEQ #	FIXTURE	UNDERNEATH
		☐ Aerator/screen ☐ None ☐ Chrome plated brass ☐ Brass tube in base ☐ Regulator at bubbler	☐ Brass connection ☐ Brass fittings ☐ Brass valves ☐ Brass T ☐ Copper w/ lead solder ☐ Copper w/ 95/5 solder ☐ Stainless ☐ Nylon/PEX
PHOTO NUMBER(S)			

BRAND/STYLE	OTHER INFO	NOTES
☐ Bubbler ☐ Central Brass ☐ Chicago Specialty ☐ Delta 400 ☐ Delta 350 ☐ Two handled Delta ☐ Bar faucet ☐ Water cooler _____ ☐ _____	☐ Underneath inaccessible ☐ Leaking/dripping ☐ Modified fixture ☐ Fixture wear/discoloration ☐ Cold runs hot ☐ Not working-do not label	**NOTES**