CT DESPP
Division of Scientific Services

Rapid DNA Handbook

Last Updated: 11/4/2025

Kiosk Overview

Rapid DNA is a tool used by law enforcement agencies across Connecticut to analyze suspected single-source DNA samples, with the potential to generate investigative leads in approximately 96 minutes. It is essentially "swab-in, profile-out". Law enforcement agencies will prepare swab samples from crime scenes via the A/B Swab Collection method. A trained operator will take one of those swabs and insert it into a Rapid DNA sample cartridge at a kiosk. The sample cartridge is inserted into the machine by a trained operator. In ~96 minutes, a DNA profile can be obtained. A state database hit, case-to-case association, or other investigative leads can be generated.

We currently have 11 total kiosks across Connecticut, encompassing 12 different Rapid instruments.

Serial Number	Location	Contact Name	Contact Email	Contact Phone	Physical Address
RHID-0928	Bridgeport	Sgt. Louis Cortello Det. Paul Nikola	Louis.Cortello@Bridgeportct.gov Paul.Nikola@Bridgeportct.gov	***(203)-581-5250***	300 Congress Street Bridgeport, CT 06604
RHID-0811	Hartford	Lt. Jonas Ricitelli	riccj001@hartford.gov	(860) 757-4221	253 High Street Hartford, CT 06103
RHID-0813	Troop E	Sgt. Sebastian Wordell Trpr Timothy Wengloski	sebastian.wordell@ct.gov Timothy.Wengloski@ct.gov	860-848-6506	Connecticut State Police Troop E - Montville PO BOX 306 Uncasville, CT 06382
RHID-0816	New London	Det. Christopher White	cwhite@newlondonct.gov	**(860)447-5274**	**5 Governor Winthrop Blvd. New London, CT 06320**
RHID-0844	Greenwich	Sgt. Pier Corticelli Det. Aran Sanitlli	pierangelo.corticelli@greenwichct.gov aran.santilli@greenwichct.gov	(203)-622-8022	11 Bruce Pl, Greenwich, CT 06830
RHID-0438	Waterbury	Sgt. Marc Fortini Brittney Ward	mfortini@wtbypd.org bward@wtbypd.org	203) 574-6920	255 E Main St, Waterbury, CT 06702
RHID-0789	New Haven	Sgt. Jarrod Boyce Det. Dave Parker	jboyce@newhavenct.gov dparker@newhavenct.gov	**203-946-6332**	1 Union Avenue New Haven, CT 06519
RHID-1022	Enfield PD	Lt. Willie Pedemonti	wpedemonti@enfield.org memons@enfield.org	**860-763-8930**	293 Elm Street Enfield Ct 06082

		Sgt. Michael Emons			
RHID-947	OCME	Dr. Maura Dejoseph Emily Demaio	mdejoseph@ocme.org edemaio@ocme.org	**860-679-3980**	11 Shuttle Road Farmington, CT 06032
RHID 1070, 1027, 1073	Forensic Lab	Cheryl Carreiro Sevasti Papakanakis Emily Russolillo	Cheryl.carreiro@ct.gov Sevasti.Papakankis@ct.gov Emily.Russolillo@ct.gov CT.RapidDNA@ct.gov		278 Colony St Meriden, CT 06451
1027	Mobile Crime Scene Van-RAPID	Cheryl Carreiro Sevasti Papakanakis Emily Russolillo John Walk	Cheryl.carreiro@ct.gov Sevasti.Papakankis@ct.gov Emily.Russolillo@ct.gov CT.RapidDNA@ct.gov John.M.Walsh@ct.gov		278 Colony St Meriden, CT 06451

Important U-drive Folders and Logins

U:\Rapid DNA

- RAPID CASES → electronic case files for all cases run through Rapid DNA
- RDNA SOP – Forms → Templates and SOPs
    - Note: All official SOPs are located in Qualtrax
- TRACKING SPREADSHEETS → Where all spreadsheets are located.
- TRAINING MATERIALS → Training PowerPoints and certificates are kept here. Individual agency folders are made, and all training materials are scanned here.
- NDIS Submission Documents
- Validation Documents

Remote Desktop

Version 2.0

(Each user has their own profile/log in to be able to see the runs once logged into the software. A manager will need to set up an account for new Admins.

Computer: 10.51.208.191
Username: dps\smallpond
Password: Password1

Direct Link that can be used with Google Chrome:
https://10.51.111.15:8082/ui/index.html#/login

Smallpond Drive

- IT to set up access to the Smallpond drive for sample import.

Smallpond – Each user will have log-ins. A manager can create one for new Admins.

Important Forms

Run Log – Each kiosk/instrument has its own. Filled out every time a sample is run.

RDNA – 02 Rapid Hit DNA Evidence Sample Run LogRevision: 8 Effective: 03/20/2024

Date	Operator Initials	Agency	Sample ID (Agency Code-Case#-Item#)	Cartridge Lot #	Result Color (green, yellow, red)	Offense	Sample Description	Sample Type (check one)
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other
								□Blood □Trace/Touch □Saliva □Semen □Wearer □Other

*Please contact the Rapid Admin before running samples that are suspected to be low-level.

Page **1** of **1**

Case Summary Form – Filled out by the PD when they run a sample and scanned to the CT Rapid email. Our notification that a sample is being run, along with the name of the agency responsible.

Rapid DNA Case Summary for PD's

Date: ___________

Case Number	
Item #	
Agency	
Evidence Description	
Offense	
Officer / Operator	
Officer/Operator Email & Phone #	

Collect Search Confirmation Form – Only needed when a sample generates a DB hit in Smallpond. After providing the name and DOB to the agency, a collect search is performed on the individual to confirm they are convicted of a felony and are qualified to be in the database.

Only AFTER receiving this form will the official Lead Notification be sent.

CT Division of Scientific Services

Offender Collect Search Confirmation Form

For Law Enforcement Agency:

Agency: _____ Case #: _____ Sample ID: _____

Offense: _____ Sample Description: _____

The undersigned, being designated by the Division of Scientific Services within the Department of Emergency Services and Public Protection to conduct such searches on its behalf, affirms that he/she has conducted a collect search to ensure the offender identified below qualifies to be in the CT Offender Database pursuant to Connecticut General Statutes Section 54-102g. (Per General Statutes Section 54-102g, a person qualifies to be in the database if: 1) the person has a conviction for, or has been found not guilty by reason of mental disease or defect of, a criminal offense against a victim who is a minor, a nonviolent sexual offense or a sexually violent offense as those terms are defined in section 54-250, or a felony; 2) the person has been convicted or found not guilty by reason of mental disease or defect in any other state or jurisdiction of a felony or any crime, the essential elements of which are substantially the same as a criminal offense against a victim who is a minor, a nonviolent sexual offense or a sexually violent offense as those terms are defined in section 54-250).

The undersigned understands that if a qualifying offense cannot be established, information regarding the individual identified below will not be disclosed to other law enforcement officers. If there is any question about whether a person qualifies to be in the Database, the officer conducting the review described above, should consult with the Connecticut State's Attorney's Office to verify a qualifying offense before taking any further action.

Upon a determination that the individual identified below qualifies to be in the Database, the undersigned may release information regarding the individual identified below to other law enforcement officers with the understanding that this hit is only an investigative lead and that confirmation of the hit must be obtained by submitting a sample from the identified individual to the CT Division of Scientific Services for further DNA testing.

The undersigned further affirms that the sample used for this comparison was obtained from a scene where a crime was committed and is believed to be a suspected single source sample of a body fluid.

The undersigned affirms that the testing was done on unknown crime scene samples for the purpose of identifying person(s) who might have committed the crime or potential witnesses to the crime and not for personal reasons.

The undersigned did not knowingly process known samples, touch samples, samples that are limited and do not have enough biological material for conventional testing.

Operator Signature: _____ Badge #: _____ Date: _____

Print Name: _____

Evidence Transfer Sheet – Needed when a sample is run for an individual who is not trained. Tracks that we took the item from their custody to run. If there is only one Swab inside and they want to discard the packaging, they can make a note that the empty packaging was discarded.

Rapid DNA Chain of Custody Form
CT DESPP Division of Scientific Services

EVIDENCE TRANSFER SHEET

Agency Case #: _____

Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____
Sub / Item #: _____ Description: _____

1st Transfer

Date: _____ Time: _____

From (Print Name): _____ To (Print Name): _____

From (Signature): _____ To (Signature): _____

Unit: Unit:

2nd Transfer

Date: _____ Time: _____

From (Print Name): _____ To (Print Name): _____

From (Signature): _____ To (Signature): _____

Unit: Unit:

3rd Transfer

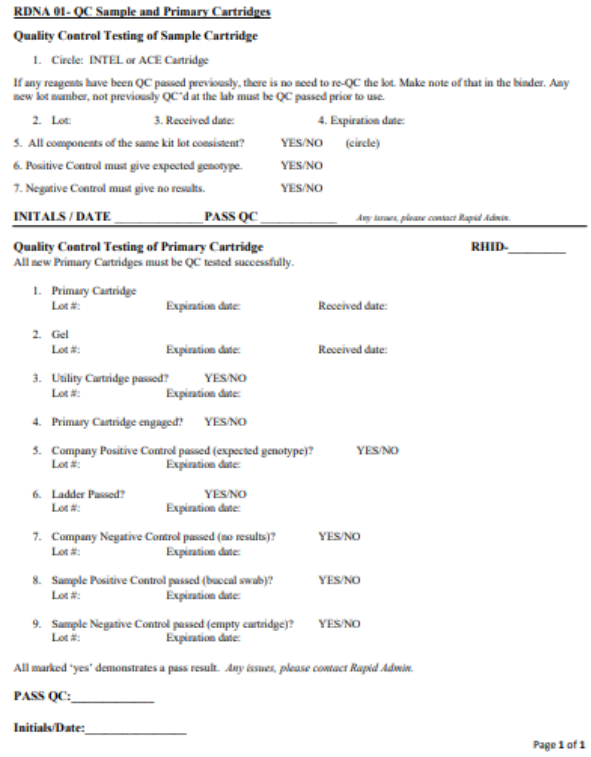
Date: _____ Time: _____

From (Print Name): _____ To (Print Name): _____

From (Signature): _____ To (Signature): _____

Unit: Unit:

QC Sheet – Completed when we QC a new lot of sample cartridges (top half) or perform a primary cartridge installation (bottom half).



RDNA 01- QC Sample and Primary Cartridges

Quality Control Testing of Sample Cartridge

1. Circle: INTEL or ACE Cartridge

If any reagents have been QC passed previously, there is no need to re-QC the lot. Make note of that in the binder. Any new lot number, not previously QC'd at the lab must be QC passed prior to use.

2. Lot: 3. Received date: 4. Expiration date:

5. All components of the same kit lot consistent? YES/NO (circle)

6. Positive Control must give expected genotype. YES/NO

7. Negative Control must give no results. YES/NO

INITALS / DATE _____ **PASS QC** _____ *Any issues, please contact Rapid Admin.*

Quality Control Testing of Primary Cartridge **RHID-**_____

All new Primary Cartridges must be QC tested successfully.

1. Primary Cartridge
   Lot #: Expiration date: Received date:
2. Gel
   Lot #: Expiration date: Received date:
3. Utility Cartridge passed? YES/NO
   Lot #: Expiration date:
4. Primary Cartridge engaged? YES/NO
5. Company Positive Control passed (expected genotype)? YES/NO
   Lot #: Expiration date:
6. Ladder Passed? YES/NO
   Lot #: Expiration date:
7. Company Negative Control passed (no results)? YES/NO
   Lot #: Expiration date:
8. Sample Positive Control passed (buccal swab)? YES/NO
   Lot #: Expiration date:
9. Sample Negative Control passed (empty cartridge)? YES/NO
   Lot #: Expiration date:

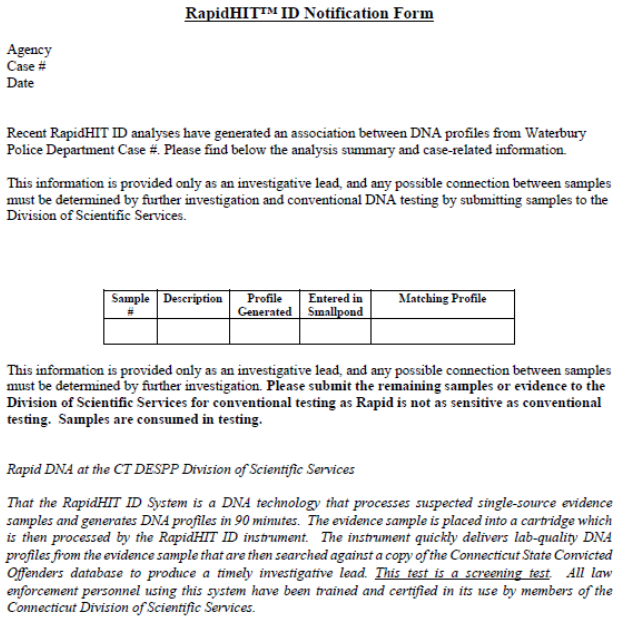
All marked 'yes' demonstrates a pass result. *Any issues, please contact Rapid Admin.*

PASS QC:_____

Initials/Date:_____

Page 1 of 1

Notification – What a hit notification looks like.



RapidHIT™ ID Notification Form

Agency
Case #
Date

Recent RapidHIT ID analyses have generated an association between DNA profiles from Waterbury Police Department Case #. Please find below the analysis summary and case-related information.

This information is provided only as an investigative lead, and any possible connection between samples must be determined by further investigation and conventional DNA testing by submitting samples to the Division of Scientific Services.

Sample #	Description	Profile Generated	Entered in Smallpond	Matching Profile

This information is provided only as an investigative lead, and any possible connection between samples must be determined by further investigation. **Please submit the remaining samples or evidence to the Division of Scientific Services for conventional testing as Rapid is not as sensitive as conventional testing. Samples are consumed in testing.**

Rapid DNA at the CT DESPP Division of Scientific Services

That the RapidHIT ID System is a DNA technology that processes suspected single-source evidence samples and generates DNA profiles in 90 minutes. The evidence sample is placed into a cartridge which is then processed by the RapidHIT ID instrument. The instrument quickly delivers lab-quality DNA profiles from the evidence sample that are then searched against a copy of the Connecticut State Convicted Offenders database to produce a timely investigative lead. This test is a screening test. All law enforcement personnel using this system have been trained and certified in its use by members of the Connecticut Division of Scientific Services.

CT Rapid Email

CT.RapidDNA@ct.gov

Get this email added to your inboxes and set up forwarding (contact Jim MGinley or Mary Houle). Any email that gets sent here will be automatically forwarded to your personal email inbox.

When a case summary is sent, check the electronic case files. If there isn't one created for the case, add it and drag the case summary in. Rename file so it can be distinguished by the sample that's running.

Any replies regarding results on a sample, print the email to PDF and save it in the electronic case file as "Communications Item#". Any future communications can be distinguished by the sample it's referring to, the number of the communication (i.e., 1, 2, etc.), or a word about what it's relating to (i.e., "confirmed case #" if the operator mistyped the case # on the machine and the case summary has a different # written).

Suppose a PD sends an email regarding a Rapid sample to your personal work email. When you reply, please CC the Rapid email so that everyone receives it. Or be sure to save that email as a PDF in the corresponding electronic case jacket so it's easily accessible to everyone if needed.

The only investigative lead that will have a document associated with it is a Smallpond hit, case-to-case association, or direct comparison/sample comparisons. For no results, insufficient data, too complex/mixtures, gender, uploading no leads, etc., we will communicate via email. The email reply should be saved as a PDF into the virtual case jacket and should have the CT Rapid email cc'd on it.

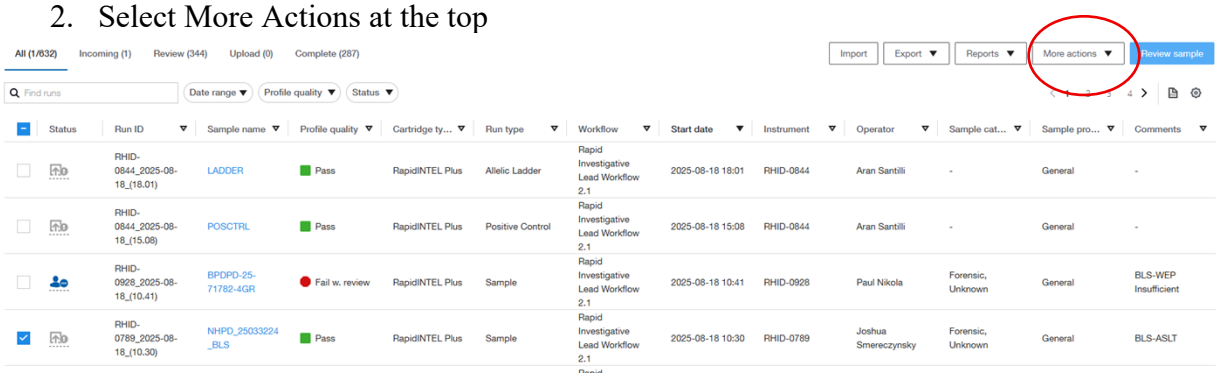
Rapid DNA Codes

Rapid DNA codes are entered into the software after reviewing sample profiles. These codes categorize both sample type and offense type, and they are used to support statistical tracking and data analysis. Failure to add these codes to the comments will result in the run not being included in this statistic. Below is the list of codes we have determined:

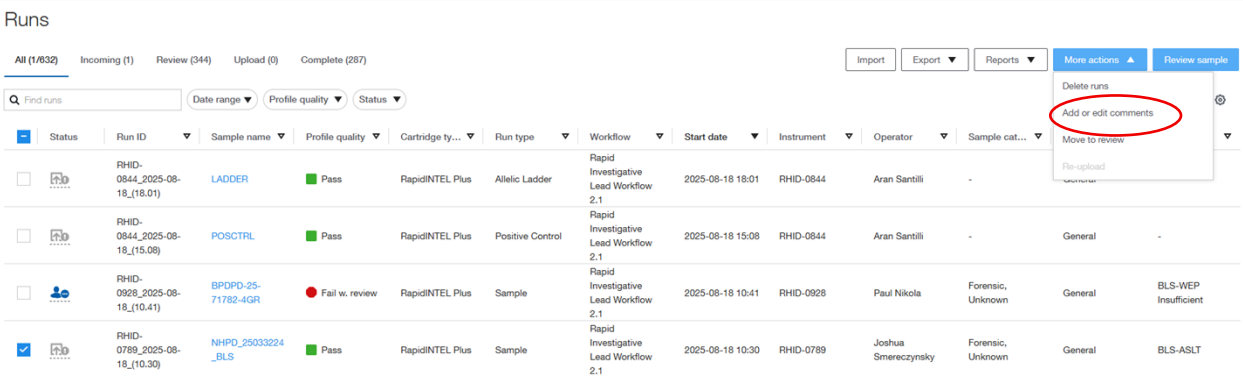
Sample Types	Offense Categories
1. Blood = BLS 2. Saliva = SAL 3. Trace/Touch (Non-Body Fluid) = NBF 4. Wearer = WR 5. Semen = SEM 6. Known buccal = KBU* 7. Known blood = KBL* 8. Tissue = TIS* 9. Organ = ORG* 10. Bone = BO* 11. Teeth = TEE* 12. Vaginal Swab = VAGS 13. Genital Swab = GENS 14. Anal Swab = ANLS 15. Oral Swab = ORLS 16. Dried Secretion Swab = DSECS 17. Unknown/Not Listed = UNK *would be added together to get the total # known samples	1. Burglary = BURG 2. Robbery = ROB 3. Homicide = HOM 4. Assault = ASLT 5. Weapons (non-fatal, ex. shots fired, shooting, possession) = WEP NONFAT 6. Sexual Assault = SASLT 7. Stolen MV = MV ST 8. Fatal MV Accident = FAT MVA 9. Arson = AR 10. Unidentified Human Remains/Body ID = UHR 11. Larceny = LARC 12. Home Invasion = HINVA 13. Other = OTHER

To add them to the comments:

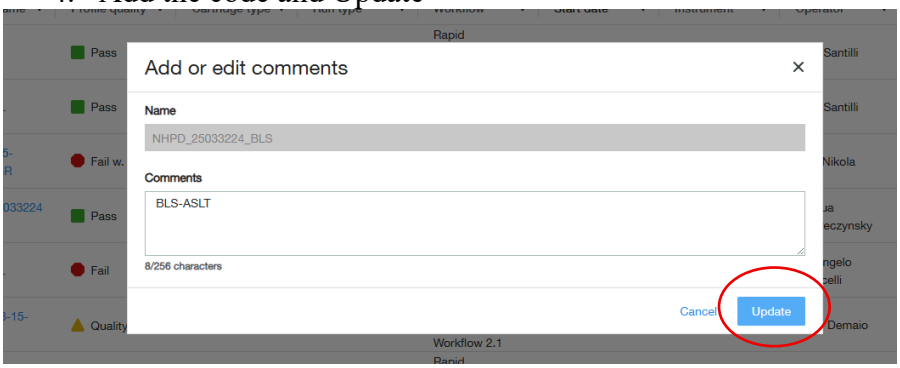
1. Select the sample in RapidLINK software
2. Select More Actions at the top



3. Select add or edit comments



4. Add the code and Update



Electronic Case Files

Electronic case files must be created and maintained for every Rapid DNA sample processed. These files ensure consistent documentation and accessibility of case-related information.

Required Components:
Case Summary Form: Submitted to the CT Rapid email account when a police department processes a sample. If a physical copy is received, scan and upload it. The physical copy may then be shredded.

Collect Search Confirmation Form (if applicable): Scanned and submitted to the CT Rapid email account after the agency conducts a collect search.

Lead Notification: Drafted as a Word document and then finalized as a PDF copy sent to the police department. Both versions must be saved in the electronic case file.

Communications: Includes all email correspondence regarding the sample (e.g., clarifications from agencies, result notifications). These must be saved in the electronic case file as "Communications" with numbering or descriptors for clarity.

Documentation of Physical Materials:
Any physical sheets or printouts associated with a Rapid DNA sample must be scanned and uploaded into the electronic case file. For example, if a match report is printed during casework, it must be scanned and added to the corresponding case folder.

Naming and Organization:
Files should be renamed in a manner that clearly distinguishes them by the sample number or identifier. This ensures that case records are easily located and referenced.

Basic Analysis for Rapid

Rapid DNA analysis follows similar interpretive principles as conventional STR analysis. All profiles must be reviewed, artifacts removed, and appropriate determinations made before uploading data.

Procedure:

1. Select the sample box and use the "Review Sample" function for all yellow quality flag samples.

2. Open the sample by selecting the Sample ID in the software.
   - Version 2.0 opens in GeneMapper-style software.

3. Review the profile.
   - All artifacts must be removed prior to upload. If loci contain a major contributor and uncertain minor peaks, retain only the major allele calls.

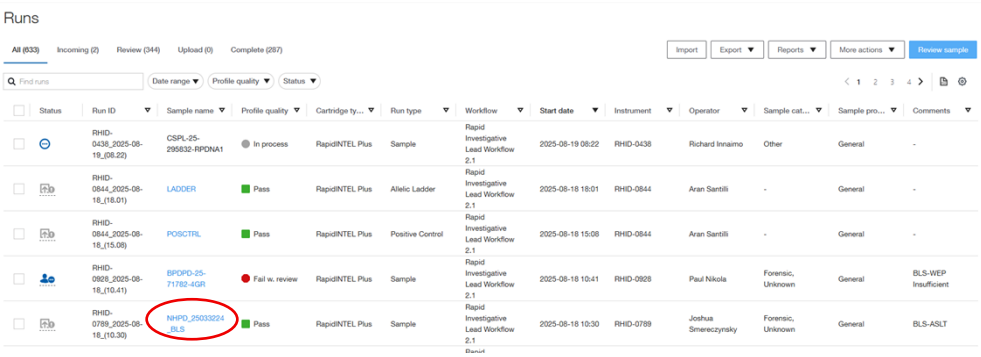
   - Interpret with caution if mobility issues are observed. Contact Thermo if issues appear recurrent or severe.

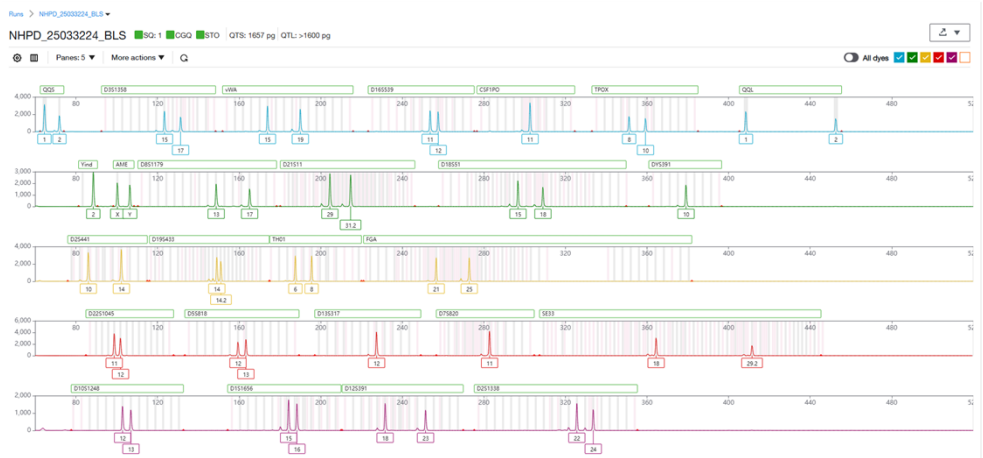
Analysis Examples

*You will always select the sample box and then click Review Sample in top right of the screen for all yellow quality flag samples

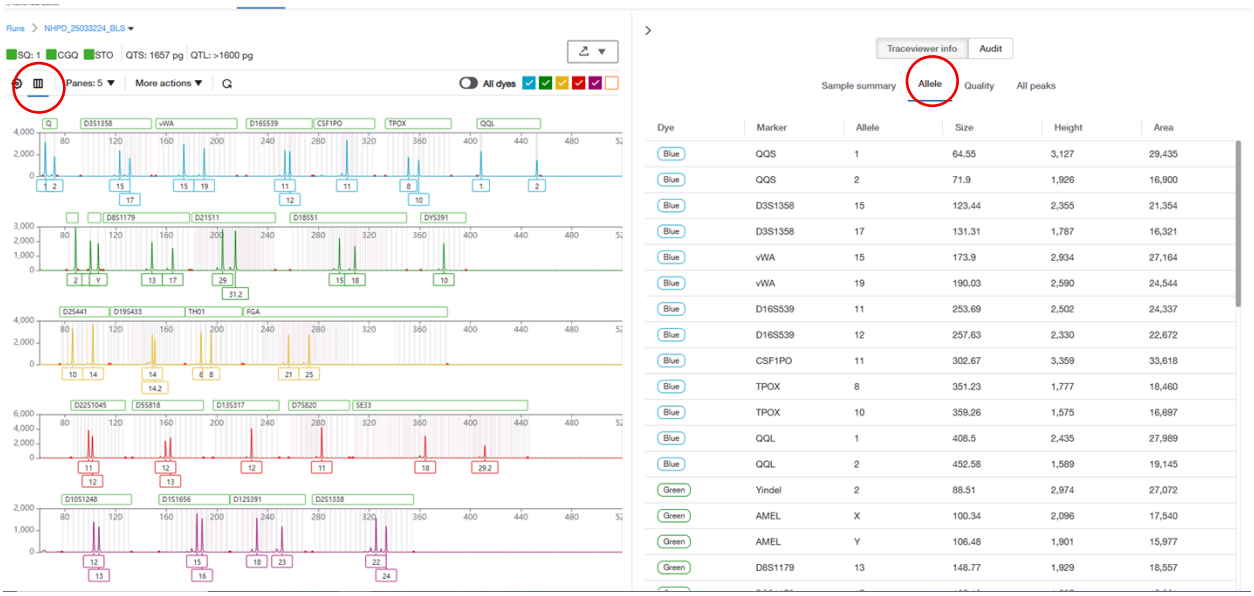
Single source

A. Green Pass
   - It will not give you the option to select sample and Review Sample at the top (there is nothing to click off).
   - Select the sample ID (blue font).





- Review the profile to just make sure every loci has 1-2 peaks, the QQS/QQL 1 peaks are called (indicating that there is human DNA in the sample)
- Peak heights are good
- To view peak height information:
  - Click Show/Hide Panels icon in top left
  - Click Allele



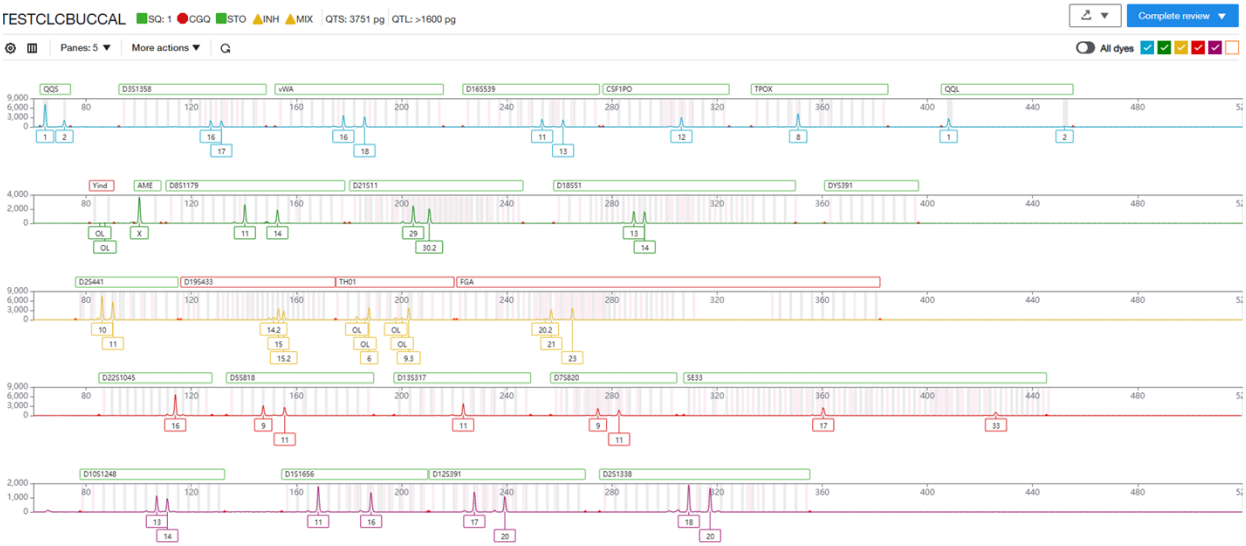
- Downloading the CMF file by selecting export XML.

B. <u>Yellow Quality Flag</u>

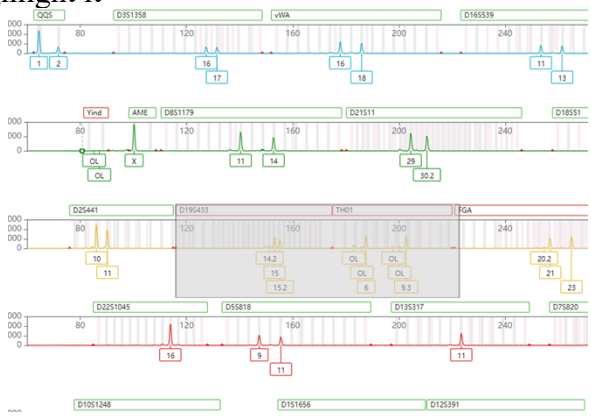
- Most single source profiles will appear as a quality flag due to the nature of the samples.
- This suggests that there may be artifacts, high stutter, or other anomalies that require further examination.
- Mixture flags will be triggered when more than two alleles are detected at a locus.
- All yellow flag samples will be reviewed prior to being uploaded.

- Mixtures, no result, insufficient, partial profiles will also trigger a yellow flag.

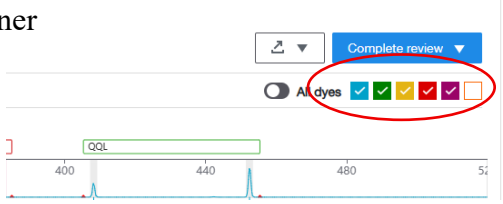
- Select sample → Review Sample



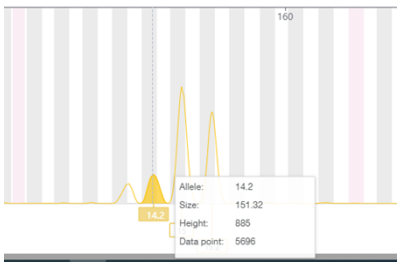
- To zoom in on a location, find the magnifying glass icon when you hover over the bins to highlight it



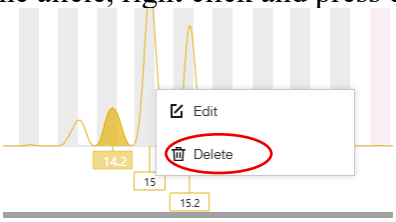
- To view only specific dye channels, check off which ones you want to view in the top right corner



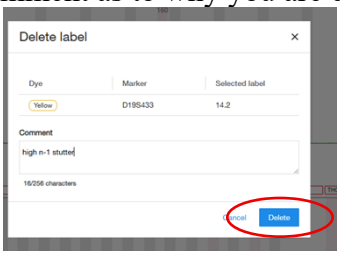
- Looking at D19:
  - Hover over the peak to view the height information



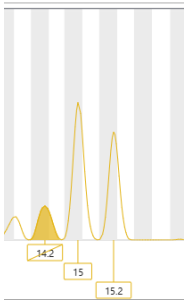
- Looking at the peak heights and other peak calls, the 14.2a is n-1 stutter from the 15.2.
- To delete the allele, right click and press delete



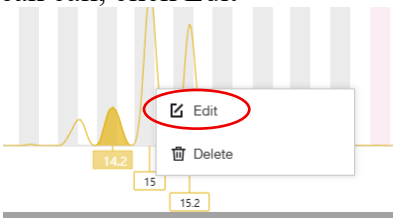
- Can add a comment as to why you are deleting it and then press delete



- It will now appear with a strikethrough to indicate that it has been removed from the profile

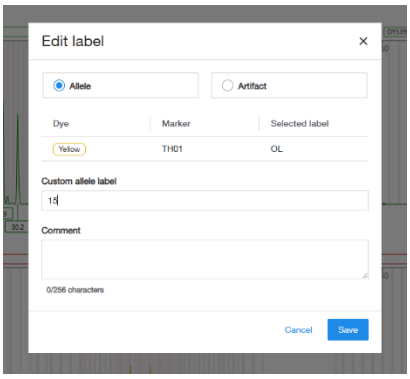


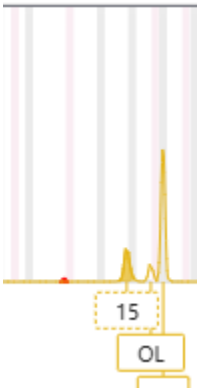
- To edit a peak call, click Edit



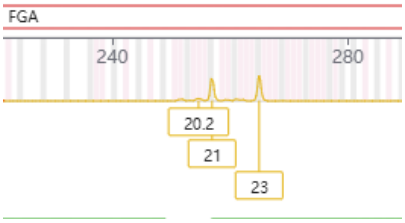
- Select allele if you are changing it to a real allele and indicate under "custom allele label" what the allele call will be OR select artifact if you

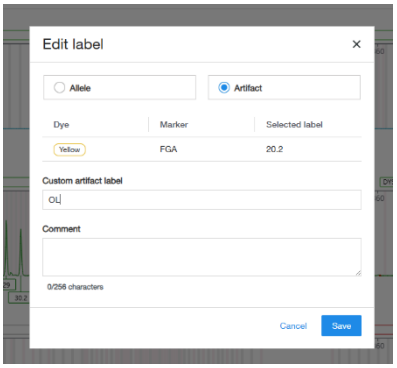
are changing it to an artifact and indicate under “custom artifact label” what artifact it will now be called

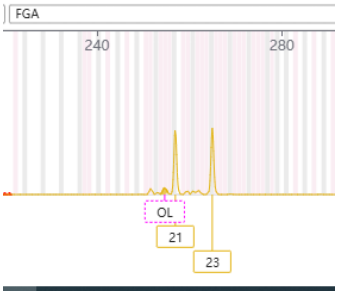




*It will now appear with dotted lines around it to indicate it’s been edited to a real allele call.

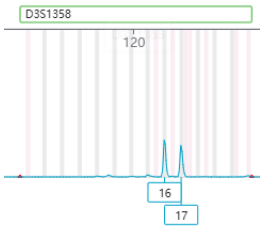




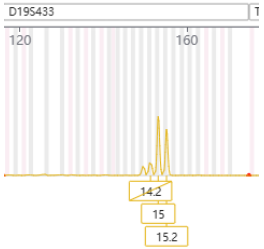


**It will now appear with pink dotted lines to indicate it’s been edited to an artifact.

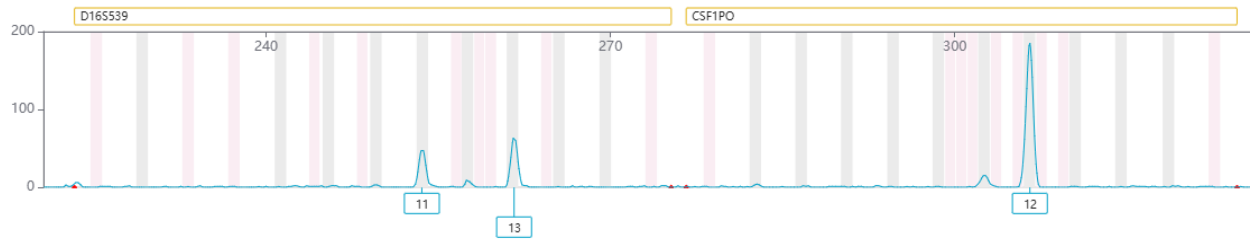
- Go through the rest of the profile and remove all artifacts so you have a single source DNA profile
  - Loci that meet the analytical, stochastic, and PHR imbalance thresholds and “pass” for a single source profile will be green



  - Loci that have been edited, will show up gray



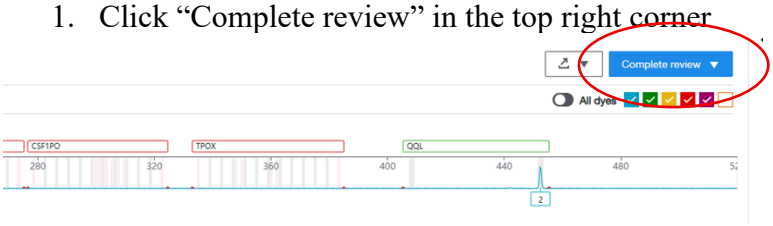
- Loci that may be imbalanced, have drop-out, or do not meet the thresholds set by the system, will appear yellow



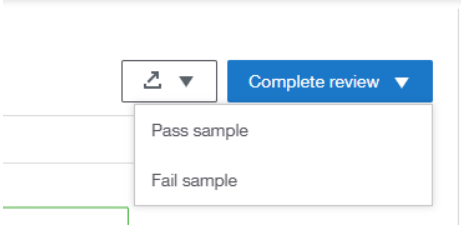
  - Complete the Review once the whole profile has been analyzed and edits have been made (see below)

Complete Review

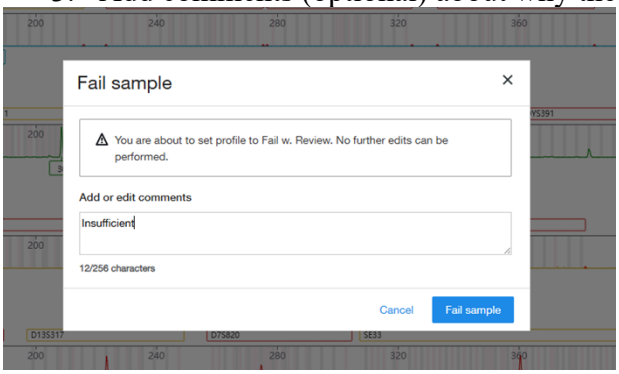
1. Click “Complete review” in the top right corner



2. Pass or fail the sample
   a. Pass if it is a single source profile or a major contributor that can be uploaded into Smallpond (must be single source to pass with review)
   b. Fail if it is insufficient, no result, a partial profile that you can’t upload, or a complex mixture where no deconvolution of a major is possible.



3. Add comments (optional) about why the sample failed or passed



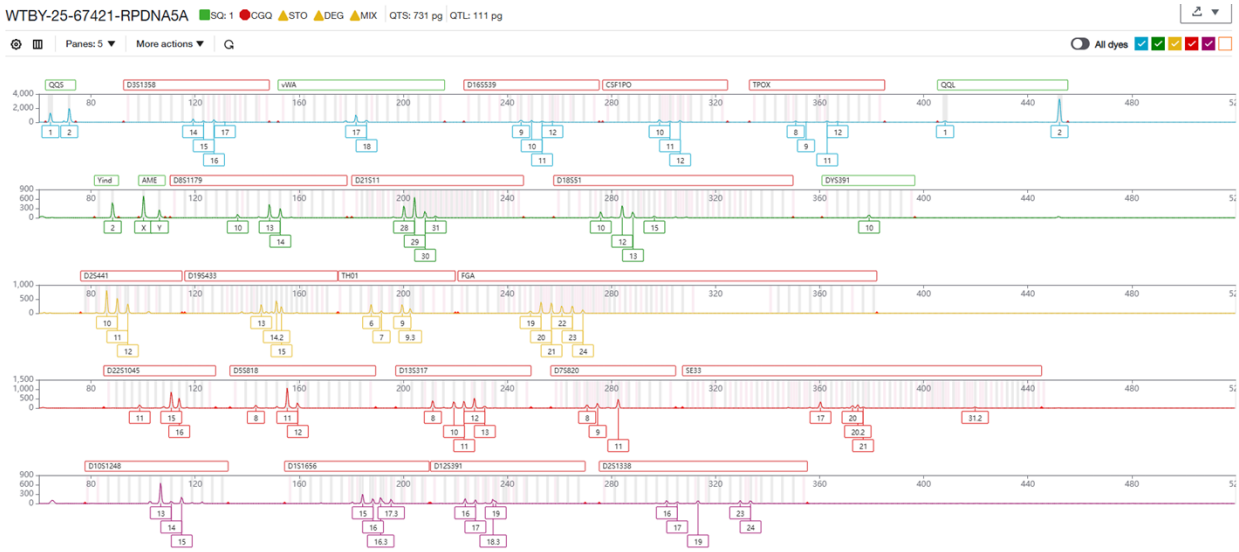
Other Kinds of Profiles

Partial Single Source

- Will show up as a yellow quality flag
- Drop out will be present in the profile
- Most times, these will not be uploaded because they won't have enough information
- If you can upload, interpret hits with caution

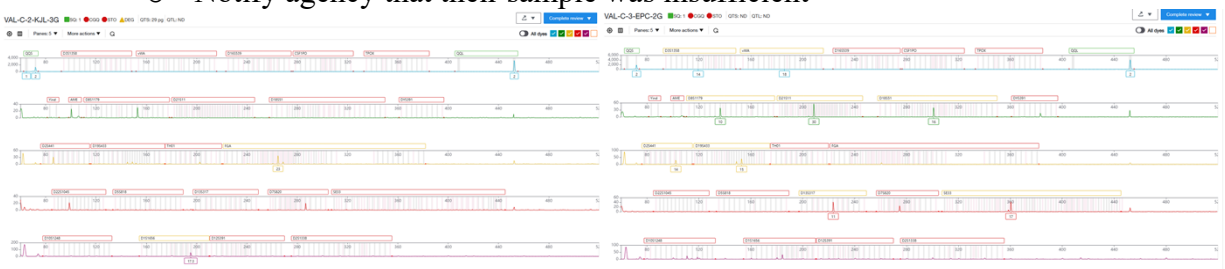
Mixture

- Will show up as a yellow qualify flag
- Flag at the top will have MIX to indicate it's a mixture
- Review the profile to see if anything can be clicked off as an artifact
- If it is too complex and you are unable to determine what is an artifact or not, the sample will be deemed too complex for Rapid DNA analysis/interpretation
- Notify the PD that the sample is a mixture too complex to upload
- Major Deduced
    - It is possible to deduce out a major contributor in a 2 (maybe 3) person mixture during Rapid DNA analysis
    - Major must be extremely clear compared to the other contributors. Typically, a 3:1 ratio of major/minor in most of the loci should be seen. There can be exceptions based on training and experience of the analyst
    - Only the major will be uploaded → remove **everything** from the profile that is not associated with the major contributor then download the CMF file
    - Interpret hits with caution
- Pass with Review → if there is a major that is being uploaded (again, everything else in profile should be deleted so only the data associated with the major is in the file)
- Fail with Review → if the profile a mixture that cannot be deconvoluted or the profile is insufficient



Insufficient

- Will show up as a yellow quality flag
- Profile has insufficient peaks to upload (less than 6 loci with drop out presence)
- Fail with Review
    - Notify agency that their sample was insufficient



No result

- Will show up as a yellow quality flag
- No DNA profile was generated, likely due to there not being enough DNA to be detected with Rapid DNA technologies or no DNA was in the sample.
- This is NOT a failed sample
- Fail with Review
    - Notify the agency that there was no DNA detected.

Failed

- Red X on instrument
- No run data generated/no analyzable profile so nothing to review
- Likely due to an instrument, primary cartridge, or sample cartridge failure during the sample run
- Notify Thermo by starting a ticket with HID tech support
    - Sometimes, they can still retrieve the data

Common Rapid DNA Artifacts

All information in this section is based on the RapidINTEL Plus Sample Cartridge User Bulletin For use with RapidHIT ID System v2.0 or later Revision C from AppliedBiosystems as well as previously analyzed Rapid DNA profiles.

Artifacts are seen commonly when the QTS value is >2,000 pg (QQS peak 1 height is greater than 3,800 RFU). Anything greater leads to an increased chance of more artifacts in the sample.

D19 is susceptible to extreme stutter amplification of 30-45%, greater than the 22% stutter threshold set for this locus.

TH01 can have a -5bp amplification artifact that is 10-30% of the main peak.

Single source female samples may have pull up in the male loci.

- Ex. pull up peaks may be seen in Yindel when the peaks in D2(Y) are >3,000 RFU
    - Common alleles in D2(Y) are 10 and 11 which will produce an OL in Yindel
    - 9.1 in D2(Y) is the only rare allele that will overlap with Yindel-1
- Ex. pull up peaks may be seen in DYS when the peaks in TPOX are >1,750 RFU
    - Common alleles in TOPX are 11 and 12 which may produce a 6a and 12a, respectively, in DYS

Spikes will be automatically called by the system.

Dye blobs are common and can be comparable to conventional testing in terms of their morphology.

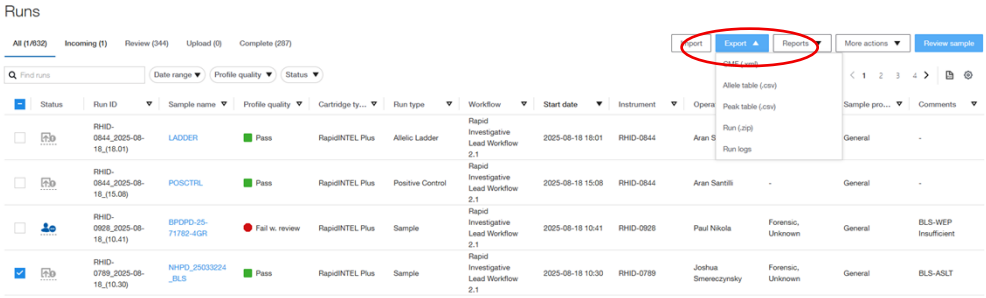
OLs may or may not be real. Microvariants may be called OL. Interpret OLs that aren't obvious artifacts with caution.

-A peaks are very common on high yield DNA samples.

Smallpond/Hit Notification Process

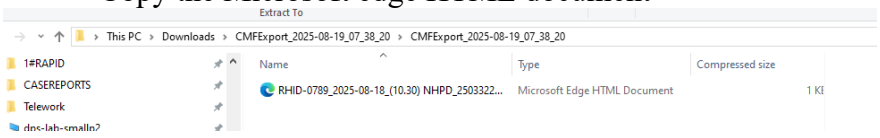
To save CMF (XML) file (**Version 2.0.1**):

- Select sample on the left
- Export at the top → CMF

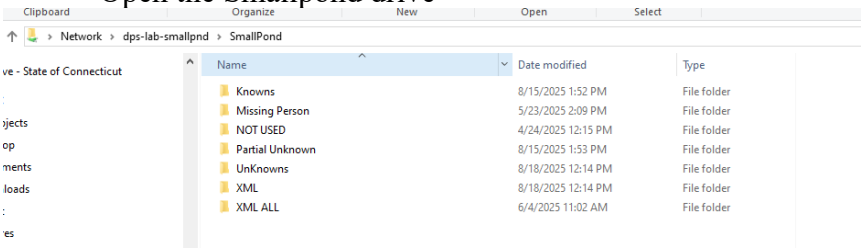


- Open up the zip folder in your downloads

- Copy the Microsoft edge HTML document



- Open the Smallpond drive



- Open the XML folder and paste the copied file
- Copy it from there and then paste it in the Unknowns folder
    - There will be a transfer or the file to Smallpond automatically.

Matching:

1. Log into Smallpond
2. Profiles
    a. Check to make sure that it went into the Unknowns Pond
    b. Should be the most recent at the top and be highlighted green (and say Completed) if it was successfully uploaded
3. Matching → Match History
    a. Hits usually happen within seconds
    b. Refresh this page and see if the sample that was uploaded gets a hit
    c. If it does, confirm the match by pressing the magnifying glass icon
    d. Lead will be to a DB number or a forensic hit to another case

Ad Hoc Matching – Done when needed. An example would be the DB profile having a >20 allele and this may cause a no-match. Enter the profile in the Ad Hoc and leave out that allele to see if there is a lead then.

1. Change the Pond to Convicted Offender
2. Put in the Specimen ID which is the Sample ID that was entered into the software
3. Get Alleles
    a. Will populate the loci with the alleles from that specimen
4. Search at Low Stringency
5. Data at 6 Loci is the minimum that can be searched.
6. Match Profile button at the bottom
7. Will bring you to another page with low stringency matches that you can compare to the profile to see if there is a lead.

If there's a lead made for the sample:

1. Search for the DB number in the database index in Justice Trax.
2. Go to Attachments and open the scanned offender card
3. Write down the name and DOB
4. Email the officer to say there is a hit and have them call you
    a. Or call them directly if you have their number
5. They will perform a collect search and fill out the Collect Search Confirmation Form
6. Once you receive the form back, save a copy in the electronic case jacket
7. Can now issue the official lead notification

If there's a hit to another Rapid sample:

1. These will be distinguished by the matching sample having the Rapid format for the sample ID (Agency code-case #-item #).
2. Include the sample ID as it is in the notification.

If there's a hit to a conventional testing sample:

1. These will be distinguished by CODIS format for the sample (XX-XXXX X-X)
2. Search the DSS number in LIMS to get the agency and agency case number
3. If there's also a Rapid sample hit and it is the same agency case number, this might just be the conventional testing sample for that case. Confirm if it is. If so, this can be disregarded and left out of the notification (since it's technically the same sample).
4. If it's different, the DSS #, agency, agency case number, and item # will go into the notification.

Agency Training

How To Set Up Training

When we obtain outside requests for Rapid Operator training, we set a date. If possible, a training session will be held each month (maximum of 15 people). Rapid DNA trainings are generally held in the Phase II Classroom at the lab from 9a-11a. Contact Daphne Lewis to determine auditorium availability and then confirm the dates with the detectives.

Training Process

Prior to training:

1. Copies are made of the training packets to hand out to all individuals present.
2. Agency codes are determined for any new agency being trained and added to the Agency Codes List.
3. Supplies needed are gathered.

Day of training:

1. Start with PowerPoint presentation
2. Tour of kiosk room and getting profiles set up in Rapid machine
3. Hands-on cigarette butt processing
4. Written test – go over answers at the end

Training Records

All training records were originally kept in binders. We have moved to virtual training folders located: U:\ Rapid DNA\TRAINING MATERIALS (PP and Certs)

- Individual folders are made per agency (add a new folder if there is a new agency being trained).
- Scan in the physical sheets and save by individual's last name
    - Test
    - Training Checklist
- Certificate template PDF is located here as well.
    - Save As a new certificate and edit the name and date.

After the training, email the certificates to each agency (can put them all on the same email). All other records are kept virtually by us and can be requested by the individual if needed.

Kiosk Proxy Cards

- We give out **1** lab kiosk proxy card per agency. That proxy card is usually assigned to the "head" that will be running Rapid samples the most.
- Once I determine the agencies who will be present at the training, I'll go into the Training Log and see if they already have a proxy card assigned to someone in their department. New agencies don't have one and will need one.
- Certificates are emailed with the name of the Sgt/Det/Ofc who we have record of having the card and have them confirm if that individual still has the proxy card.
- Once the individual who will be getting the card, send an email to Cheryl including the individual's name and their agency and she will forward the request to Bruce.
- Once the card is ready, record the proxy card number for that individual in the Training Log. Send an email to the individual saying that their card is ready for pick up in Evidence Receiving

at their agency's next evidence drop-off appointment. Bring the card down to Evidence Receiving.

Training Log Tracking

(U/Rapid DNA/TRACKING SPREADSHEETS → Rapid DNA Training Log)

1. Open spreadsheet (Sheet 1 – Training Log)
    a. Whenever new officers are trained, type in their First Name, Last Name, Department, and Email into the appropriate columns.
        i. Make sure everything is spelled correctly and the spacing is consistent (ex. CSP-CDMC not CSP – CDMS). Wrong spacing will affect the data in the next sheet.
    b. Observational Proficiencies will be noted with a "P" on the run log. Fill out this column with the date of the run, the run name, and then the result next to the person who did the proficiency.
        i. "P" = Pass
    c. The first column is for recording the proxy card number that is assigned to that individual.
2. Sheet 2 is "Training Data".
    a. The formulas will generate how many individuals from each agency are trained based on the first spreadsheet automatically.
    b. New agencies have to be manually put into this sheet.
        i. Ex. If a new PD is trained and those people are put into Sheet 1, there is no way for them to automatically be put into the second sheet. You will have to add a row for that agency and then add the formula for it. For the formula, just copy the previous one and change the agency name.
        ii. If a new agency is added, you may have to adjust the range of the data in the formula for the total # of individuals.
    c. The bottom statistics are manually updated based on the number of rows.
    d. The total number of people trained should be the same as the number people in the first spreadsheet (aka the number of rows).

Case Run Log Tracking

At the end of each month, every sample that gets run is copied from RapidLINK to the master Case Run Log. I request copies of each individual kiosk's case run log, but they aren't completely necessary unless there's a discrepancy or we are missing result information.

U:\Rapid DNATRACKING SPREADSHEETS/Edits of RapidHIT ID_Case Run Log

Columns A, B, C, D, E, H, I, J, K, O = Can be found directly in RapidLINK looking at the Sample ID or by downloading the run PDF..

Columns G, H, , L, M, P, Q, R, S= Can be found in the electronic case file, looking at the Case Summary Form and any email communications.

Any run that wasn't a sample (control run, buccal test, etc) is distinguished by "TEST" as the Agency Case # (Column E). "Yes" still gets filled out in column M so it can be counted in formulas. The entire row will be filled in dark gray.

Column Notes

- F - DSS Case # = In LIMS, search the agency and then the agency case number used for Rapid. Select the "contains" box. If you find the right agency number that was used for Rapid, this indicates that we have a DSS case number for it. Put this number in the column or put "no results found" if searching did not give a match.
    - It is possible that at the time of searching the case, the agency hasn't submitted it yet. Periodically go through the "No results found" cases and search them again to see if they submitted it between the initial search and the present day.
- M - Sample Type = Drop-down menu
- O - Result Color = Drop-down menu
- P - Profile Generated = Drop-down menu
    - If you want to add any other options to any of the dropdowns, select the whole column → Data → Data Validation → Data Validation → add to the Source list and separate with a comma → OK
- Q - SmallPond Upload = Based off email communications. Can also search in SmallPond the run name and see if any results show up. If it doesn't, this means that the profile from the sample wasn't uploaded. If you get a result with the given run name, the profile for the specific sample was uploaded. You can then see any hits.
    - To check SmallPond:
        - Matching
        - Match Report
        - To see all samples that were put into SmallPond for a specific agency, search the beginning of the run name (AGENCY CODE*)
            - This will give a list of all specimens that start with that agency code.
            - Ex. "MANPD*" will generate a list of all Manchester PD samples that were run on Rapid and entered into SmallPond.
        - If you don't see the sample name, that means that it was not entered.
        - Click on the sample and it will take you to all of the matches for that sample. Here, you can look at the profile that was obtained on Rapid and then compare it to any other entries (hits to DB offenders, hits to other runs).
        - If there are a lot of hits that seem "random", this could potentially mean that the profile is not sufficient to be in SmallPond and must be removed.
- T/U/V - CODIS Entry-CT and CODIS Entry-National = These are obtained from the completed lab case report.
    - This is based on the sample that was run for Rapid.
    - If the agency submitted the case to the lab, but there is no indication in the report that the item that was run on Rapid was tested → This will be No.
    - If a profile from another item was uploaded and the Rapid sample was similar to the uploaded sample → this gets filled out as "Yes"
- W - Rapid Comments = I will add comments from the notification form onto here, the DB or case numbers for hits, any sample specific notes

- X - Lab Testing/CODIS Comments = I will add here what is written in the case report regarding the DB upload. Ex. It was uploaded to CT, but not appropriate for National, I will write "not appropriate for national…"
    - Relevant results based off the Rapid sample, if it wasn't tested in the lab, etc.

Checking Hit Concordances

Only for runs that have a hit ('Yes') in the hit column and a DB number in the Rapid Comments), go back in and search for the DSS case number.

Attachments will have any CODIS hit forms and the DNA Report (case has to be completed to do this). Check to see the Rapid sample CODIS entry (if there was one). If there was another item uploaded to CODIS and the Rapid sample was similar to it, this still counts. Confirm that the hit generated is the same DB hit as the Rapid sample. This signifies a concordant hit.

*We now have a sheet (Monthly Breakdown) that calculates the total number of Sample Runs, Test Runs, and Total Runs.

Monthly and Yearly Statistics Breakdown

Monthly

At the end of each month, go in and copy over all sample runs for each of the kiosks for the month into the Excel Rapid run log. Sample results should be in the virtual case jacket as a communication or hit notification. If there is nothing, search the CT Rapid email (it's possible nothing was saved) or email CLC/SP with the sample ID and date ran as its possible communication was done via phone and not documented originally.

In the **Master Rapid Stats Excel** spreadsheet, add a new sheet for this month's stats. (U:\DNA Analyst Folders\CLC\1#RAPID\TRACKING SPREADSHEETS\Stats/Master Rapid Stats)

For Kiosk chart – The Monthly Breakdown sheet on the master case run log should have all sample, test, and total runs calculated automatically for each kiosk. You can manually count on the master log to confirm. Fill out for each kiosk and generate a bar chart comparing the Sample Runs to the Test Runs per kiosk for the month. For leads, count hits/investigations aided for the month across the kiosk and manually type the number into here. To generate the chart:

1. Insert
2. Recommended Charts
3. All Charts
4. Clustered Column

For the Samples Run vs Investigative Leads generated by agency – Copy and paste from the Master Log Data on the case run log. Only need the Department, Total Samples Run, and Sum Hits and Investigations Aided columns. Sort by highest to lowest for total samples run. Delete any agencies that have 0 for samples run. Generate a Clustered Column chart.

For the Training Data – If new officers are trained, this will need to get updated (if no new individuals are trained for the month, the same data from the previous monthly statistics can be used). Copy and paste the data from the Training Log and generate a Clustered Column chart.

Sample Types Bar Graph – Count the total for each type on the master case run log for the month and manually add to the bar graph on the first sheet.

Monthly Sample Runs per Kiosk Line Graph – Paste in the previously calculated information from the kiosk chart. Select the line graph and make sure that the data entered for the month is being included in the chart (drag the selection if not).

Heat Map - Updated as towns run more samples based on the bar. Look to see which towns ran samples for the month. Check their total on the Master Log Data sheet of the case run log to see their calculated total sample runs. If it brings the town to a new range, they will have to be updated. Paste the image into Paint and fill in new color.

Putting Together the Report

'Save As' the previous month's statistics and rename the document.

Overall Summary Table

Total Samples Run Since 07/2021 – Add the total samples run for the month to this number. *Note: May be slightly off from what is being calculated in the spreadsheet. CLC generate the starting number when we first began doing stats, so we have been adding right to this number.

Samples Uploaded to Smallpond DB – Count the total samples that were uploaded into Smallpond from the master case run log and add to the previous months' number.

# of Hits/Investigations Aided – Take the total number of leads from the month generated in the kiosk chart and add to the previous months' number. This should be equal to the sum of hits/investigations aided from the master case run log (may be 1 off).

Total personnel trained – Add to the previous month's number for however many new individuals were trained for the month.

Total agencies trained – Add to the previous month's number any new agency trained.

Hit Rate: Leads/Runs uploaded to DB – Divide the total number of leads by the total number of uploads to DB

Hit Rate: Leads/total amount of runs on instruments – Divide the total number of leads by the total samples run since 07/2021.

Divide the total samples uploaded to DB by the total samples run to generate the final percentage.

Replace all of the charts/tables with the newly generated charts/tables. Make sure any dates are changed to reflect the new range for the month.

Save as PDF and send to CLC, CC'ing SP.

Yearly

This is essentially a compilation of all monthly statistics but summarized to reflect the total numbers for the year.

A new tab is created in the Master Rapid Stats Excel for the year.

Copy over all numbers for the monthly statistics.

- Total of all samples run for each month of the year per kiosk
    - Create a line graph
- Total of all leads generated for each month of the year per kiosk
    - Create a line graph
- Create a summary table for samples run and leads generated for each kiosk for the year

- Highlight the sample type column in the Rapid Case Run Log only for the year that the stats will cover. 'Control F' for all the different sample types to get the total for each category
- Create a bar graph

*Note: Sheets on the Master Rapid Stats Excel are hidden as they are no longer needed. To view a hidden sheet or hide a sheet, right click on the bar at the bottom and press 'Unhide'. This makes it easier to access the needed sheets.

Primary and Sample Cartridge QC

RDNA 01- QC Sample and Primary Cartridges

Quality Control Testing of Sample Cartridge

1. Circle: INTEL or ACE Cartridge

If any reagents have been QC passed previously, there is no need to re-QC the lot. Make note of that in the binder. Any new lot number, not previously QC'd at the lab must be QC passed prior to use.

2. Lot: 3. Received date: 4. Expiration date:

5. All components of the same kit lot consistent? YES/NO (circle)

6. Positive Control must give expected genotype. YES/NO

7. Negative Control must give no results. YES/NO

INITALS / DATE _____ **PASS QC** _____ *Any issues, please contact Rapid Admin.*

Quality Control Testing of Primary Cartridge **RHID-**_____

All new Primary Cartridges must be QC tested successfully.

1. Primary Cartridge
   Lot #: Expiration date: Received date:
2. Gel
   Lot #: Expiration date: Received date:
3. Utility Cartridge passed? YES/NO
   Lot #: Expiration date:
4. Primary Cartridge engaged? YES/NO
5. Company Positive Control passed (expected genotype)? YES/NO
   Lot #: Expiration date:
6. Ladder Passed? YES/NO
   Lot #: Expiration date:
7. Company Negative Control passed (no results)? YES/NO
   Lot #: Expiration date:
8. Sample Positive Control passed (buccal swab)? YES/NO
   Lot #: Expiration date:
9. Sample Negative Control passed (empty cartridge)? YES/NO
   Lot #: Expiration date:

All marked 'yes' demonstrates a pass result. *Any issues, please contact Rapid Admin.*

PASS QC:_____

Initials/Date:_____

Page 1 of 1

For Sample Cartridges: A lot only needs to be QC'd once. If we receive a new shipment in of sample cartridges and the lot has been previously QC'd, it is unnecessary to QC the lot again. We receive all new sample cartridge lots and QC them at the lab. Once QC'd, we can disperse them to the kiosks as needed.

1. Run the positive control cartridge

i. You should get a green check mark indicating that it passed (the appropriate profile was developed). View the profile to confirm.
ii. If there isn't a green check mark, view the profile to see why it didn't pass. Sometimes we are still able to pass the positive control depending on what the reason for not passing is. If something went wrong, contact Thermo and open a new ticket. Re-run the 2nd positive control that comes in the box.

2. Run the negative control cartridge
   i. You should get a green check mark indicating that it passed (there are no peaks present). View the profile to confirm.
   ii. If there isn't a green check mark, this could indicate that there are peaks present. View the profile to determine why it didn't pass. Was there carry over from the positive control? Was there other contamination present? Contact Thermo to open a ticket.

For Primary Cartridges: This is done when a primary cartridge on a Rapid instrument expires and needs to be replaced. This is performed by lab personnel or Thermo Field Engineers. All primary cartridge supplies get shipped to the lab (besides New Haven and Bridgeport who order their own supplies). When a kiosk primary expires, we will contact them to determine the best day to go on-site to do the primary cartridge replacement and bring all needed supplies.

Steps

1. Prepare the new primary cartridge
   a. Unscrew the white shipping plug
   b. Turn the red shipping plug 90 degrees to remove it (press down hard as you do it)
   c. Install the gel cartridge
      i. Remove the end of the syringe (making sure to pull out straight so it doesn't bend)
      ii. Insert the tip into the inlet with the square marker on top
   d. Remove the red capillary cover
2. Log in
3. Select menu button
4. Select primary cartridge icon
5. "Do you want to eject primary cartridge?" → Yes
6. The screen will go through images to prep the new primary cartridge (already did above)
7. Select "Done"
8. Insert a red utility cartridge when prompted
9. Utility will run for a few minutes to disengage the current primary.
10. Remove the primary cartridge screen will be displayed. Remove it and discard in biohazard. Insert the new primary cartridge. SLOWLY and keep an eye on the capillary to make sure it doesn't touch anything.
11. Utility will run for the full ~96 minutes.
12. Run the positive control.
13. Run the ladder.
14. Run the negative control.
15. Run the sample positive control (buccal).

16. Run the sample negative control (empty cartridge).

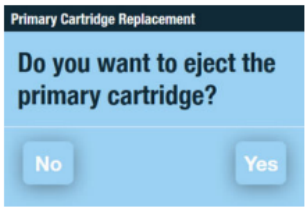
If everything passes, the primary cartridge has been successfully QC'd. If anything fails, rerun the necessary controls. Contact Thermo to open a ticket if needed.

When installing a primary cartridge at an off-site kiosk, we get the process started and stay for the duration of the utility cartridge (has failed halfway through this step in the past. If it passes, then we put the positive control on and leave the user with a step-by-step on which ones to run next.
The below images are taken from the RapidHIT ID System v1.3.1 User Guide from Applied Biosystems.

1. Sign in as an administrator or a supervisor.
2. Touch **(Menu)**.
3. Touch **(Primary cartridge)**.

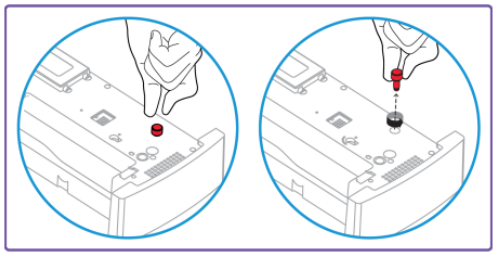
① Primary cartridge icon

4. Touch **Yes** to confirm that you want to remove the primary cartridge.

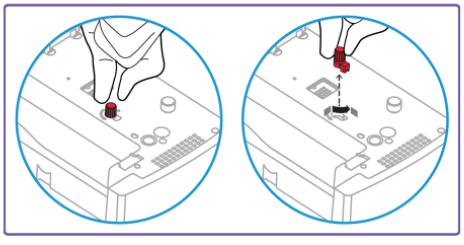


The first primary cartridge screen is displayed.

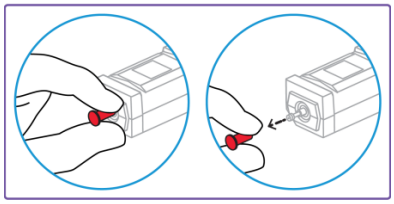
5. Unscrew the shipping plug in the cathode block.



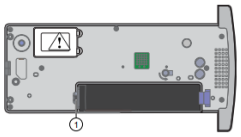
6. Turn the shipping plug in the check valve 90° counterclockwise, then remove it.



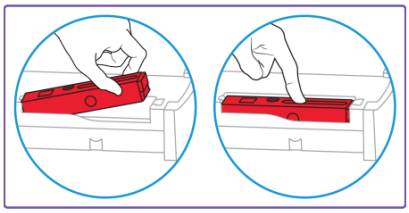
7. Gel cartridge: Remove the shipping plug from the gel cartridge inlet by pulling the plug straight out of the inlet. Do not twist the plug when removing.



8. Insert the gel cartridge into the primary cartridge with the tip of the gel cartridge facing the gel cartridge inlet and the square marker on the top.



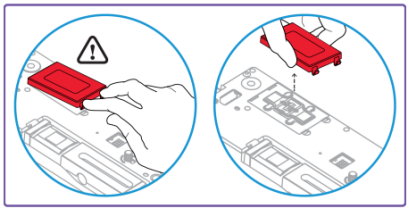
① Gel cartridge inlet



The gel cartridge clicks when it is fully inserted into the primary cartridge.

9. Remove the shipping cover from the capillary by pressing the brackets toward the cover, then swinging the cover up and away from the capillary.

⚠ **CAUTION!** The capillary is fragile. Handle the primary cartridge with care after you remove the capillary cover.

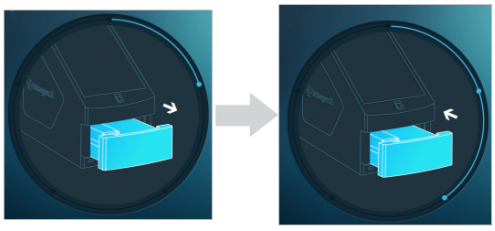


10. Touch **Done** at the bottom of the primary cartridge screen.

11. When the insert utility cartridge screen is displayed, insert the utility cartridge into the instrument. The utility cartridge has a red label and is provided with the new primary cartridge.

    A countdown timer starts at 9 minutes while the instrument disengages the primary cartridge. After ~3 minutes, the remove primary cartridge screen is displayed (see step 1 on page 43.

1. When the remove primary cartridge screen is displayed (~3 minutes after you insert the utility cartridge in the instrument in step 11 in the previous procedure), pull the used primary cartridge out of the instrument.



2. When the insert primary cartridge screen is displayed, insert the new prepared primary cartridge into the instrument.

Storage

1. Fridge in kiosk
    a. QC'd sample cartridges for PDs to use
    b. Extra controls
2. Walk-in Fridge in FB1
    a. Over stock of cartridges
    b. Primary cartridge gels and ladder cartridges that come with
3. Phase II Closet
    a. Primary cartridge housing
    b. Laptops that come with the Rapids
    c. Boxes of swabs

Ordering

- When we run low on sample cartridges (have one box or less left), let Cheryl know. She will place an order for more boxes.
- Follow up with Gabby if we haven't received an order or have any questions.
- When we get packages in, they usually need to be refrigerated right away
    - Take packing slip, confirm what we got and initial and date that it was received. Keep a copy (drop off to ER office) and give original to Daphne in Admin.
        - If it was a replacement for something (we didn't purchase it), I'll make a note on the packing slip that it was a replacement item.
    - On the box, write the date it was received and initials.
    - If it's cartridges, write "not QC'd" on top. Once QC'd, go back in and cross out.
    - Sample cartridges and gels/control cartridges (that come with new primaries) are then put in the walk-in refrigerator in FB1.
- If we received damaged packaging:
    - Take a photo
    - Send Gaby, Alex, Heather, and RHID tech support
    - They will send replacements

ThermoFisher Contacts

- Alex Sucheka < alex.suchecka@thermofisher.com>
    - Our main contact for program success
    - Bi-weekly teams meeting with her to go over program sustainability and success
- Eric Ramirez eric.ramirez@thermofisher.com
    - Main contact for troubleshooting
- Jarrett Roth < jarrett.roth@thermofisher.com>
    - Secondary contact for troubleshooting
- David Jackson < david.jackson@thermofisher.com>
    - Head
    - Gets involved when there are big issues or when we are given big updates regarding products
- Gabby Capell < gabriella.capell@thermofisher.com>
    - Ordering
- Luke Herman luke.herman@thermofisher.com
    - Analytics dashboard
    - Deals with connectivity
- Jessica Bork Jessica.bork@thermofisher.com
    - Does a lot of the remote troubleshooting
- Adam Pietraz <adam.pietrasz@thermofisher.com>
    - Usually gets assigned as the on-site field engineer for us
    - Does the PMs

When a problem arises and a ticket needs to be open (i.e. a failed run, failed controls, a machine is getting an error code, etc.), an email must be first sent to HID Technical Support < HID.TechSupport@thermofisher.com>. From there, you can CC any of the above individuals (usually Eric, Cheryl, Sevi, Emily, Jarrett, Alex). They will forward the email and assign additional people to the thread if necessary.

Setting Up Remote Session – Will be changing once our IT can get the VPN for Thermo to work. Once they work, they will be able to remote in whenever they need to without us needing to set up a session.

1. Go into Google Chrome on the laptop in the kiosk.
2. Open support.me
3. Enter the code provided by the Thermo Technician.
    a. The code expires in 15 minutes. A new code will be needed if you cannot set it up within the 15 minutes.
4. Download
5. Open downloads
6. Right click on the session → Run as Administrator
7. This will open a remote session.
8. Wait for it to connect to someone.
9. Press “Yes” in the pop-up window to give the technician access