RECYCLING CERTIFICATION INSTITUTE

RECOLOGY SAN FRANCISCO INTEGRATED MATERIAL RECOVERY FACILITY (iMRF), SAN FRANCISCO, CALIFORNIA.

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WASTE ZERO

CORR PROTOCOL EVALUATION REPORT

Nothing Wasted

January 2, 2023
Evaluation Body: Nothing Wasted Consulting
Executive Summary

This report corresponds to the evaluation of the Application for CORR Certification submitted to the Recycling Certification Institute (RCI) by Recology San Francisco's (RSF) Integrated Material Recovery Facility (iMRF) operation located at 501 Tunnel Ave. in San Francisco, CA. The iMRF is currently owned and operated by Recology San Francisco.

This Evaluation was conducted by Nothing Wasted Consulting (NWC) which is a certified evaluating body of RCI and represents an independent review of data and information provided by RCI. Due diligence was followed to ensure Duty of Care and Duty of Loyalty to the Institute and to manage any Conflict of Interest.

RCI Evaluators Manual 2.0 (EM) and RCI General CORR Protocol 1.9 (GCP) were used to guide the evaluation process as is standard practice for all Evaluations. The RSF iMRF previously participated in the RCI Sampling Protocol and conducted quarterly Sampling Events.

RCI uses a 95% confidence level as its Minimum Quality standard when calculating recovery or recycling rates using the weights of materials recovered and recycled. The evaluation found neither material nor immaterial misstatements nor deviations from the described process train for the operations at the RSF iMRF site. The six months of recovery and recycling data submitted by RSF iMRF was within the quantitative materiality threshold of 95% (less than 5% error) per EM Section 2.2.3.

Overview of Recology iMRF and Operations

A Construction and Demolition (C&D) processing operation, the iMRF has operated as a resource recovery facility since 2002. The facility permits include a Solid Waste Facility Permit (SWFP) issued by CalRecycle, a Permit to Operate (PTO) issued by the Bay Area Air Quality Management District (BAAQMD), and the Hazardous Materials Registration issued by the Department of Public Health (DPH).

The iMRF building structure is 48,000 square feet and consists of steel frame construction with ribbed metal siding on all sides. As currently permitted under the Solid Waste Facility Permit (SWFP), the RSF iMRF may accept up to 1800 tons per day (tpd) of materials. The primary materials received at the RSF iMRF include construction and demolition debris, wood waste, and mixed debris generated from the San Francisco Bay Area. Residuals from the recycling operation are transported to the Recology Hay Road Landfill in Vacaville, CA under the City of San Francisco's Waste Disposal Agreement with Recology.

The iMRF operates for 2 8-hour shifts each day. It accepts material 24/7. The iMRF Sort Line operations are split into the following two (2) shifts: 4:00 A.M. to 12:00 P.M. and 12:30 P.M. to 8:30 P.M. Monday through Friday. Operation of the iMRF during the weekend is dependent on material volume. Wood processing operates from 10:00 P.M. to 3:00 A.M., most days of the week (volume dependent).

Load Checking

All materials entering the iMRF are weighed and recorded, including material type, date, time, weight, fees, hauler, and the generators' city of origin. After weighing their inbound load, drivers proceed to the appropriate location in the facility to empty the material from their vehicle. C&D loads designated for the iMRF are directed to the main roll-up doors and material is visually checked via RSF staff (the load checker) who utilize an operable overhead camera. The threshold for acceptable material is up to 40% contaminated (garbage). Load checkers will reject loads in excess of the contamination threshold and instruct the driver to dump the load in the garbage pit. Acceptable loads of material are dropped on the primary concrete tipping floor. If the materials do not match the materials identified on the driver's tag, the load checker notifies the driver and scale ticket corrections are noted on the front of the ticket and on a load checking sheet. This written notice is then corrected later in PC when the weight tags are manually corrected by the weighmaster for accuracy.

Processing

Following the initial load inspection, the material is loaded into the iMRF Sort Line's incline conveyor hopper using a front-end scoop loader or excavator. Once placed on the incline conveyor the material moves through a shaker screen to separate fines (items smaller than 2.5 inches) from larger items. The larger materials continue through to the pre-sort line where material handlers stationed on either side of the moving conveyor belt pull select recyclable materials and materials that will disrupt automated sorting, by jamming or wrapping around the equipment, off of the belt and drop them through metal chutes into assigned storage bunkers or debris boxes for temporary storage before transport off-site. The materials that are identified as non-recoverable and disruptive to the automated sorting equipment are landfilled and accounted for as residual material from the iMRF operation. The remaining items following the Pre-Sort drop onto a conveyor belt that takes the material through a coarse and fine shredder in preparation for the Fully Autonomous Sorting System (FASS). Once the materials are reduced to a uniform size, they go through a series of mechanical sorts that separate the items based on size and density into lights, mediums, and heavies. Each group then moves through a series of robots that clean each stream by removing contaminants or picking out the desired materials. All residual non-recyclable materials remaining at the end of the iMRF Sort Line are expelled to the Transfer Station's landfill pit via a conveyor belt.

The following materials are recovered, and their respective processing is described below each material:

> ***Cardboard*** is collected from the sort line both manually by the sorters on the pre-sort line and mechanically by the optical sorters, and then deposited into a bunker fit with a compactor. The compacted OCC is transported to the Recycle Central facility at Pier 96 for processing where it is baled and sold to a recycled cardboard manufacturer.

Clean Wood is recovered manually and mechanically and is deposited in two separate bunkers (loose). The Peterson Pacific 2750C horizontal grinder is used to grind clean wood from the sort line. The ground material is transported on a Krause Manufacturing conveyor belt (approximately 6' wide and 50' in length) into a Peerless overhead storage hopper. Ground, clean wood is then transferred, in a walking floor trailer, off-site to a compost operation where it is colored and used as a landscape mulch.

Fines from the hopper are loaded out directly into long haul trucks parked under the hopper doors. The fines are taken to a permitted solid waste disposal facility for use as alternative daily cover (ADC).

Gypsum/Drywall/Sheetrock Sheetrock is recovered both manually and mechanically, and is collected loosely in bunker #3 and in a debris box in bunker #5. Collected gypsum/drywall/sheetrock is loaded into a trailer for off-site transfer to a compost operation where it is recovered and used as a soil amendment.

Metal (ferrous & non-ferrous) Metal is recovered manually and mechanically by magnets. Recovered metal is kept loose in a dedicated bunker. Both ferrous and non-ferrous material is sent off-site to a metal recycling company to be processed and recovered.

Mixed Rigid Plastic is collected from the sort line manually and deposited into the appropriate bunker's 10 to 40-yard open-top box. Collected plastic is transferred to the Recycle Central facility at Pier 96 where it is mechanically and optically sorted, baled with other plastics, and sold to an end market to make new products, such as trailer side panels and window frames.

Recyclable Inerts (Concrete, bricks, and block) are no longer processed at the iMRF. Loads are directed to the Public Recycling and Recovery Area elsewhere on the RSF property.

Residuals include all non-recyclable materials remaining at the end of the sort line. Residuals are discharged onto an overhead conveyor system that transports and expels the non-recyclable materials directly into the Transfer Station's tipping pit. Residuals from the pit are transported via long haul trucks to the Hay Road Landfill in Vacaville, CA under the City of San Francisco's Waste Disposal Agreement with RSF.

Tires are sorted from the tipping floor and combined with others dropped off at the PRRA before being sent to a rubber recycler to be made into new products such as playground mats.

****Mixed Recyclables*** (clean mixed paper, plastic bottles, & aluminum cans) are beginning to be collected in a designated bunker which, when full, would be transferred to the Recycle Central facility at Pier 96 for processing. This collection process is currently in the early development stage.

Development of Evaluation Plan

RSF initiated the Certification process by first Registering its Mixed C&D line on RCI's Registration webpage: https://www.recyclingcertification.org/registration/ and subsequently submitted an Application for Certification. The application included monthly

and annually detailed and summarized tonnage reports, lists of markets (material recipients and their contact info), and a variety of other background documents. Other information provided through the intake process includes:

- Name of the facility
- Street address of the facility (P.O. Box not acceptable)
- Name of the city/state where the facility is located
- Facility type
- Scale(s) certified (required)
- Permits – state/local Registration Number or state/local permit number
- Hours of facility operation
- Current tons of Inbound and Outbound materials
- Name of company contact person, their position/title, and contact information
- Website address

RCI conducted an interview with Robert Hanke, Operations Manager and Elena Petkova, Process Development Analyst regarding the submittal of documents that would be used in preparation for the Evaluation. Key elements of this information can be found in the CORR Protocols Edition 1.91, Appendices A and B, viewable on the RCI website Resources page. RCI also provided an overview of the Evaluation process and agenda to aid in the streamlining and completion of activities on the day of the site visit. On-site review would include:

- Tour of the facility
- Verify process train of materials as stated in Application for Certification
- Verify proper sorting and storage of the materials
- Verify use and calibration frequency of certified scales
- Observe and verify weighing of materials and electronic storage of information
- Observation and verification of load/material sorting and accuracy
- Observe and verify QC measures are in place to ensure accuracy in recovery and uploading of facility data
- Review of recyclables sales records
- Confirmation of permits
- Interviews with key personnel
- Review of employee training/safety manuals
- Calculation of variance in recovery and recycling rates
- Other materials/documentation that may aid in the preparation of a Facility Evaluation Report and Evaluation Opinion

RSF submitted six prior months' data for RCI's review to determine the accuracy of the mass-balance calculations. RSF provided Excel spreadsheets that allowed for calculations and data review as well as determination of random sampling to occur during the site visit including weight tags, days, dates, materials, tons, etc. RCI noted areas of potential risk on which to follow up during the site visit.

SITE VISIT

On December 21, 2023, NWC performed an on-site evaluation of the RSF iMRF operations. Robert Hanke, Elena Petkova, and Julio Gonzalez conducted the tour of the facility. Mr. Hanke and Ms. Petkova served as RSF's lead contacts throughout the Evaluation process and were responsible for submitting the initial application and responding to subsequent inquiries. NWC completed a thorough walk-through of the facility, examining where all materials enter, are measured, deposited, processed/sorted, and staged before they eventually leave the facility.

The site visit also included follow-up questions from NWC's initial review of RSF's submitted data and facility narrative. Interviews of staff associated with the key areas of the operations, in particular, employees who have access, authority, and responsibility for maintaining and reviewing processes related to the overall integrity of RSF's data, were conducted. RSF's Lead Weighmaster (Mr. Gonzalez) provided a demonstration of their use of the PC Scale to generate reports and retrieve information. He also noted how weights are recorded manually and entered into a digital database as a countermeasure in the rare event of a system interruption. NWC also reviewed training manuals and in-person training logs to determine if adequate quality control (QC) existed for those staff with the potential to directly affect the recycling and recovery rates self-reported by the facility and determined adequate and ongoing training exists in these key positions to maintain quality control of processes and data.

Overall, the RSF facility (including administrative offices, iMRF, scale house, and Public Recycling and Recovery Area [PRRA]) was observed to be clean and well-maintained, and maintenance logs were well-kept. Mechanical sweeping of the facility also occurs at least several times per day. Adequate signage was observed indicating safety, hazards, material identification, directions for traffic, and where different materials should be deposited. All personnel were observed to be wearing appropriate personal protective equipment.

Regulatory Compliance Test

Recology San Francisco possesses the necessary permits to operate.

The facility permits held by RSF include a Solid Waste Facility Permit issued by CalRecycle, a Hazardous Waste Transporter Registration Certificate issued by the Department of Toxic Substance Control, a Permit to Operate issued by the Bay Area Air Quality Management District, and a Hazardous Materials & Waste Program Unified Program Facility Permit issued by the San Francisco Department of Public Health.

There has been no substantiated non-compliance with permitted operations or other regulations governing the operations of this facility in the past twelve months. No irregularities were found involving management or employees who have a significant role in internal controls, or that could have a material effect on the reporting of RSF's recovery and recycling rates.

Use of Scales

NWC concludes that the facility satisfies the requirements for use of scales.

RSF has two Rice Lake metal platform scales that are calibrated monthly by American Scale Co. Every incoming truck is required to go over one of these scales and record its weight before disposing of any material at the iMRF. RSF has a "Main Scale" which is responsible for weighing the majority of vehicles including self-haul contractors delivering materials to the iMRF. The "Main Scale" building houses a computer that records weights from RSF's inbound and outbound scale platforms. As noted in the above section, RSF staff demonstrated their countermeasure procedure in the event of a system interruption.

Incoming Materials

All incoming loads are assessed to determine origin and waste type. RSF trucks that collect and dispose of material at the iMRF are all debris boxes (a.k.a. roll-off trucks). Truck capacities range in size from 20 to 50-yard debris boxes. Material received ranges in weight from 1.5 tons to 8 tons per box. All intercompany trucks go over "Scale 1", the main scale, to capture the gross weight (combined truck and box weight) in PC Scales. Drivers are asked by scale house staff to identify their load's material type, and the 5-digit vehicle identification is entered by the weighmaster. All external customers who bring in C&D are tagged "CDMIX". Customers requiring LEED certification will provide their permit number and project address to be included in the ticket entry.

There are also select contractors and self-haul trucks that dump their material at the iMRF. These customers are required to get inbound and outbound weight on each load dumped. The contractor and self-haul trucks that cannot tip their loads using their vehicles are directed to the (PRRA) where they are instructed to manually offload their materials. RSF staff will load recyclable materials from the PRRA into a 50-yard box that is dumped onto the iMRF tipping floor when it is full. Recology also collects the City and County of San Francisco's C&D Hauler Registration Number for all self-hauled material on weight tags as required by Ordinance. Customers hauling C&D without a Registration Number are also being noted in the weight tag system.

Outbound Materials

Outbound transactions are weighed at "Scale 6" or the "Main Scale". A weight transaction is generated for every vehicle that goes across the scales and the truck is charged only for the net weight of the load. The truck weight is collected in PC and the weight tag is generated in the weight tag system. Each weight ticket contains a numeric ticket number, date, time, origin, commodity type, comments (if applicable), tare, gross and net weights, and measurement units (tons, cubic yards, each, etc.). The tare weights are stored digitally and updated, as necessary.

Load-out materials are also weighed out at Scales 4, 5, 8, or 9. There is a weight tag generated for each outbound load. This process is similar to the inbound weight capturing process, as each vehicle used for transporting a commodity has a vehicle identification

number that has the stored tare weight, and drivers are required to enter their material type for recording weights and tracking materials. Plastics and cardboard load-outs are an exception to this process. These materials are loaded in the iMRF and run across the Main Scale, where the attendant captures the weight and generates a ticket for each load.

Supporting Data for Rate Estimates

NWC concludes Recology San Francisco maintains required supporting data as required by the EM for recycling and recovery rate estimates.

RSF uses PC Scales Software to record, track, and process a weight transaction on each vehicle and load entering and exiting the facility. RSF's electronic data management system (EMS) is connected to the main office also located onsite. During the site visit, RCI reviewed a dozen weight tags in the main office to verify the accuracy of the EMS as well as the process for any subsequent manual adjustments. RSF's scales are calibrated approximately once per month (above the CORR minimum) by a scale contractor licensed by the State of California (American Scales Co.).

Data Transcription and Management

Sufficient QC exists for creation of reuse and recycling rate tables from EMS data.

NWC and RCI interviewed RSF's Weighmaster, Julio Gonzalez, regarding the PC Scale EMS and the generation of all reports as well as supporting mass balance spreadsheets. Material data is automatically entered into the system for accounting purposes. These reports are reviewed to verify accuracy as well as hand enter and/or correct any manual adjustments as determined through the normal course of business. RSF has implemented a procedure to request Unlock/Update for the web report if monthly billing reconciliations result in a need to update previously submitted monthly data.

NWC verified RSF's procedures by observing different steps throughout the process, including data correction practices. NWC concludes that sufficient quality control exists for data transcription and management.

Individuals Properly Trained for Functions They Perform

RSF employees receive adequate in-house initial and recurring training, including training from outside sources.

NWC reviewed RSF's training schedules and modules/materials as well as conducted interviews with key employees during the site visit. Adequate signage was observed for safety, hazards, and material identification, and all personnel were observed to be utilizing appropriate personal safety equipment. RSF employs a full-time Safety Department to specifically address employee and customer safety at the facility. Newly assigned employees of RSF participate in a safety orientation on their first day of employment. RSF regularly conducts training on hazardous waste; load checking; stormwater pollutant discharge; local, state, and federal laws; equipment; tools; and lockout-tagout. RSF also

conducts daily tailgate meetings before shifts. Potential hazards and safety procedures are stressed during all training sessions. During each meeting, employees are required to sign log sheets. RSF staff training emphasizes on-the-job training under the supervision of facility management and other employees experienced in the skills and knowledge required. Outside expertise is utilized to provide additional training based on knowledge or a particular skill set required for a certified trainer. Sufficient numbers of personnel are trained in each job category to provide necessary backup and standby capability.

NWC was able to verify, upon request, that RSF iMRF employees receive initial and refresher training in the following areas:

- Hazardous Waste Program
- Hand tool & equipment checklist
- Excavator & heavy machine operation
- Machine operation
- Fall prevention – housekeeping
- Substance abuse
- Distracted Driving and Company Cell Phone Policy
- Fire extinguisher
- Instrument operations
- Facility inspection
- Explosives recognition
- Ergonomics
- IIPP & incident reporting
- Confined space
- Emergency response & evacuation
- Spill response
- Defensive driving & seatbelt policy
- Bloodborne pathogens
- Asbestos awareness
- First Aid, health, CPR, & AED
- HAZWOPER with Freon
- Lockout-Tagout

RSF iMRF staff designates and trains inspectors and backup personnel to conduct load-checking inspections to comply with WACP protocols. Employees involved in load-checking activities are trained in the program procedures, and the health and physical hazards associated with hazardous and infectious waste through the above-noted programs. In general, all site personnel are trained to identify and report any suspicious loads or materials.

Initial training and refresher courses occur as required to comply with federal, state, and iMRF requirements. Employee training logs are maintained for 3 years, or the duration of their employment, whichever is longer. Training records identify the topics covered, the date of the training sessions, the name and title of the instructor, the name of the employees, the job title of the employees, and documentation by the trainer of successful completion.

Based on the observations of staff, the work areas, and the initial and ongoing training of RSF employees, NWC concludes that RSF provides employees with adequate and appropriate training.

Performance Standard Test

Reported recovery and recycling rates are within 5% allowed threshold.

RCI requested electronic copies of mass balance spreadsheets for RSF before scheduling the site visit. RCI reviewed the files and noted areas requiring clarification. Email correspondence with Process Development Analyst Ms. Petkova and an in-person interview with Weighmaster Mr. Gonzalez were conducted to review RCI's questions related to the six-month mass-balance and monthly entries, as well as to discuss how RSF would upload the information into RCI's web-based reporting system.

Formulas were reviewed, their validity was tested, and a general overview was scheduled for discussion during the site visit. The recycling and recovery rates information submitted by RSF fell within the Quantitative Materiality threshold (95 percent or better accuracy) as defined in the EM. RCI concludes that RSF's reported reuse and recycling rates satisfy the Performance Standard Test required per the EM.

Acknowledgments

This report builds upon the 2021 CORR Protocol Evaluation Report and the iMRF Facility Narrative Recology submitted to RCI.

Evaluation Statement Overview

Based on an extensive review of data from RSF's iMRF operation, the findings according to RCI and CORR protocols via the evaluation process, and the on-site visit and interviews with key staff, NWC finds that RSF's iMRF operation meets RCI's eligibility requirements, complies with all measurement and record-keeping requirements, and has no existing material or significant immaterial non-conformances or misstatements in its reported data. NWC hereby certifies the Recovery and Recycling rates submitted by RSF as Real Rates as outlined in the EM and per RCI CORR and Sampling Protocols.

The undersigned hereby certify that the information provided herein is true, complete, and accurate; they have read and understand the protocols developed by RCI and are familiar with the requirements of RCI. Furthermore, they also certify that any signatories duly elected, qualified, and acting officers of their respective organizations and that their organizations agree to be bound to the protocols of RCI.

For Nothing Wasted Consulting:

By

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January 11, 2024
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