



Occupational Noise Study:

Recycling and Transfer Station

Treasure Island, CA

Client: Caribbean Recycling and Transfer Station
Jack Sparrow
999 Pearl Ave.
Treasure Island, CA 98765

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Industrial Hygiene Report Reliance Statement and Warranty

Gold Health and Safety Consulting, Inc. ("GSC") was engaged by Jack Sparrow of Caribbean Recycling and Transfer Station (herein "CRTS" or "Client") to conduct a study of noise exposure at CRTS facility in the Treasure Island, California. GSC performed the study on May 8 and 9, 2013 in accordance with generally accepted professional industrial hygiene practices.

GSC's services consist of professional opinions and recommendations made in accordance with generally accepted industrial hygiene principles and practices and are designed to provide a tool to assist the Client. GSC or those representing GSC bear no responsibility for the actual conditions or safety of the Client's operations or facilities.

Upon acceptance of the report, the Client agrees that GSC's investigation shall be limited by the terms and conditions stated in GSC's report, and that the actual health and safety conditions at the facility may change with time or operational changes; that hidden conditions (not discoverable within the scope of this assessment) may exist at the site; and that the scope of this investigation was limited by time, budget and other constraints imposed by the Client.

Regardless of the findings of GSC, GSC makes no warranty that the site is free from existing safety hazards, contaminants, or other non-compliance situations. GSC is not responsible for consequences or conditions arising from facts that were concealed, withheld, or not fully disclosed at the time the Monitoring was conducted.

GSC represents to the Client that it has used the degree of care and skill ordinarily exercised by health and safety consultants in the performance of the services and in the assembling of data and information related thereto, in accordance with generally accepted professional practices. No other warranties are made either expressed or implied.

GSC is not licensed as medical professionals; therefore the conclusions and recommendations contained within this report do not constitute medical opinions, human health risk analysis, or public health alerts. A licensed physician should be consulted for such opinions.

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Section 1.0 - GENERAL BACKGROUND

1.1 Introduction and Purpose

Gold Health and Safety Consulting, Inc. (“GSC”) was engaged by Jack Sparrow of the Caribbean Recycling and Transfer Station (herein “CRTS”) to conduct an occupational noise study at the CRTS facility located at 999 Pearl Ave., Treasure Island, California. The sole purpose of the study and this report is to provide the Client with information regarding occupational noise exposures at the time of the study.

1.2 Site Background and History

CRTS is a waste transfer facility located in Treasure Island, CA, California. The company has a large commercial site with multiple buildings and outdoor areas. Activities at the site include loading and unloading trash, waste sorting, waste shredding, and administrative offices. Waste transferred from the site is sent to various landfills and recycling facilities.

GSC was requested by Mr. Sparrow to perform a noise study on select employees of CRTS. GSC was also asked to provide a written report of findings.

1.3 Noise Measurements

The metric for noise measurement is the decibel scale, which is logarithmic. The intensity of noise doubles with every 5 decibel increase. In addition, decibel scales can be weighted to have a response to certain frequencies of noise. Cal-OSHA uses the “A” weighted response scale, which most approximates the human response to noise, as do most other regulatory agencies that cover noise issues. The metric is commonly abbreviated “dBA”. The basic Cal-OSHA permissible exposure limit for noise is 90 dBA for eight hours.

As noise levels and employee exposure can vary greatly in a workplace, time weighted averages and dosage percents are used to determine exposure amounts for the entire workday. As louder noise levels are more hazardous, when the noise level increases the allowable amount of time of exposure decreases. For instance, if the noise level was 95 dBA, then the maximum allowable time of exposure would be four hours to have a 100% dose. A 95 dBA exposure for 8 hours would be equivalent to 200% dose. Modern noise dosimeters calculate the average noise exposure and dosage percent quickly and easily, which greatly simplifies the industrial hygienist’s job.

1.4 Noise Hazards and PELs

It is well known that prolonged and repeated exposure to hazardous noise levels can cause permanent hearing loss. As a result, the Cal-OSHA regulations (California Code of Regulations, Title 8, Article 105) include regulatory Permissible Exposure Limits (“PEL”) for noise. The basic exposure limits for noise are contained in the following table:

Table I: Basic Cal-OSHA Noise Exposure Limits

Exposure Type	Noise Level
Action level (8 hour weighted average)	85 dBA
Permissible exposure limit (8 hour weighted average)	90 dBA
Maximum allowable continuous noise exposure (15 minutes)	115 dBA
Impulse noise (1 second or more intervals)	140 dBA

In addition to the above exposure limits, Cal-OSHA requires that when noise levels exceed the Action Level, the employer enact a Hearing Conservation Program, which must include the following elements:

1. A written program document.
2. Annual audiogram examination for exposed employees.
3. Annual training for exposed employees.
4. Proper selection of hearing protection.
5. Hearing protection is required for areas/tasks that would expose an employee to 100% or greater of the PEL and voluntary for 50% – 99% (the action level).
6. Warning signs in areas where hearing protection is required.
7. Posting of a copy of California Code of Regulations, Title 8, Article 105 (the Hearing conservation regulation).

Section 2.0 – STUDY METHODOLOGY

2.1 Study Strategy

As discussed above, GSC was requested by to conduct noise dosimetry on select employees at CRTS to determine if those employees were exposed to levels either near or over the Cal-OSHA Action Level or PEL. The employees monitored were selected by the CRTS. Two shifts of personal dosimetry were conducted, one on 5/8/13 on the night shift, and the second on 5/9/13 during the first shift. According to the CRTS representatives, business activity levels on the dates of the monitoring were typical of normal levels.

2.2 Monitoring Methodology

GSC utilized ten Quest Technologies Micro-15 audio dosimeters to conduct the Monitoring. All dosimeters were set to correspond with Cal-OSHA’s noise measuring criteria (i.e., “A” scale weighting, slow response, 5 dBA doubling, etc).

Prior to collecting noise measurements on the day of monitoring, each dosimeter was first field calibrated by using a Quest Technologies QC-10 acoustical calibrator. The calibrator received its last annual calibration certification on May 12, 2012 by CIH Equipment Company of Clearwater, Florida. Once calibrated and set to record data, each dosimeter's microphone was attached to the subject employee's clothing near or on their collar, and remaining portion was clipped to their belt or placed in a pocket. The monitoring continued during the employees' entire work day.

Following the monitoring period, each dosimeter's data collection was paused. Next, the results were reviewed by pressing various option keys on the meter. The resulting displayed data was documented by GSC for review and inclusion in this report.

Section 3.0 – MONITORING RESULTS

3.1 Monitoring Results

The results of the noise monitoring conducted on May 8 and 9, 2013 are contained in Table II below:

Table II: Dosimetry Results

Date	Work Area	Employee Name	Average Noise Level	TWA in dBA	Dose %	Peak
5/8/13 (night shift)	Shredder/Grinder	Fernando Lamas	99.00	100.64	434.4	136.8
	Shedder	Jose Jimenez	105.62	107.26	1084.8	124.1
	Shredder	Jesus Jones	97.46	99.02	346.9	110.2
5/9/13 (day shift)	Quality Control	Miriam Bligh	61.32	31.46	1.90	116.2
	Main Sort	Patchy Pirate	89.19	89.31	90.44	123.0
	Presort	Red Beard	78.26	78.33	19.71	114.7
	Containers	John Christian	63.65	63.75	2.6	111.0
	Rover	Black Beard	85.31	85.41	52.50	114.1
	Spotter TF	Jesus Jones	85.29	84.68	47.48	115.5
	Spotter TF	Richard Blackthorne	85.97	85.33	51.90	116.2
	Spotter TF	Rueben Sandwich	87.92	87.3	68.35	118.1
	Spotter TF	David Crockett	85.62	85.0	49.56	117.7
	Spotter TF	Marco Polo	84.53	83.88	42.49	114.3

The results from the May 8 and 9, 2013 monitoring indicated the following:

- Noise levels for all night shift employees working at the shredder were considerably above the PEL for noise. In addition, Mr. Lamas's peak noise level (136.8 dBA) was over the maximum allowable level (130 dBA).
- Noise levels for half the day shift employees were over the Action Level for noise.

These results indicate that Recycling and Transfer Station must implement a Hearing Conservation program to comply with Cal-OSHA requirements, or maintain one if it is already in place.

For further discussion of these results, please see report Section 4.0, Discussion and Conclusions.

Section 4.0 – DISCUSSION and CONCLUSIONS

GSC's conclusions are based upon the conditions observed at time of the monitoring, as well as the available information and data, including that provided by the Client. Topics not explicitly discussed within this document should not be assumed to have been investigated.

Noise monitoring was conducted by GSC on May 8 and 9, 2013 at CRTS's facility in the Treasure Island, CA, California. The purpose of the monitoring study was to determine if occupational noise exposure levels were unhealthful or above Cal-OSHA's Action Levels or Permissible Exposure Limits. The study consisted of personal dosimetry conducted on ten first shift employees who work in various areas of the facility, and three night shift employees that work at the Shredder.

The results of the dosimetry study revealed that all three Shredder area employees were exposed to noise levels over the PEL and in one case (Mr. Lamas) over the maximum allowable noise level. As such, CRTS must maintain a Hearing Conservation Program, as discussed in Section 1.4 above. These employees must wear hearing protection with a noise reduction rating (NRR) of at least 29 or better to be adequately protected from noise. Several brands of compressible foam earplugs have a NRR of at least 29 and are available from industrial supply and safety firms, such as Grainger.com. It should be noted that Cal-OSHA requires that employees must be given a choice of "acceptable" hearing protection (i.e., those with an adequate NRR).

GSC understands that the grinder in Mr. Lamas's work area may have been removed from service. This would most likely reduce the noise substantially in this area. As this is the case, it would be beneficial to retest the noise in this area.

In addition, half of the first shift employees were exposed over the Action Level to noise (85 dBA). For these employees, hearing protection is not “mandatory” per Cal-OSHA, but this does not prevent CRTS from developing its own safety rules that are more protective than Cal-OSHA. Since 1) it can be challenging to enforce hearing protection for some employees who are voluntary vs. those that are mandatory, and 2) CRTS is responsible for Worker’s Compensation claims for hearing loss even if Cal-OSHA noise standards are complied with, CRTS should consider requiring all employees in relatively noisy areas to wear hearing protection.

Until such time that noise levels and/or exposure have been reduced to be below the PEL, Cal-OSHA requires that hearing protection be worn by employees exposed over the PEL, or offered to those exposed over the Action Level (unless CRTS enacts its own requirements, as discussed above).

Cal-OSHA requires employers to implement noise engineering or administrative controls where “reasonably feasible” to do so. “Reasonably feasible” may include economic considerations. GSC believes it would be difficult to apply noise engineering controls at CRTS, but this issue should be reviewed separately. Administrative controls include shortening worker exposure time to loud environments. For instance, if Shredder employees only worked 4 hours in that area, their noise exposure would be reduced considerably. If either engineering or administrative controls are implemented, re-monitoring should occur.

Finally, pursuant to the client’s request the monitoring for the purpose of this report was conducted solely on one day (for each shift). Variations in monitoring and employer activity levels can always occur during any industrial hygiene project, thereby affecting the validity of the results. For this reason, GSC always recommends that multiple days of monitoring be performed to improve the statistical reliability of the results.

Section 5.0 – RECOMMENDATIONS

5.1 Specific Recommendations

GSC recommends that following course of action for the client:

1. Maintain a Hearing Conservation Program (see Section 1.4 for details). If CRTS needs assistance with developing and implementing a program, please contact GSC for assistance.
2. Retest the noise in the Shredder area as equipment operation has been reported to have been changed. The noise level may be substantially lower at this time.
3. CRTS must require hearing protection with a NRR of 29 or greater to be used during by Shredder area employees.
4. CRTS must offer employees exposed over 85 dBA (see Table II yellow highlighted employees) and nearby coworkers hearing protection, or optionally make its use mandatory. This hearing protection would need only a low NRR value, so most any type of hearing protection would be adequate to meet this need.

5. Post safety signage in the Shredder area that states: “Hearing Protection Required While Equipment in Operation.” The signs should be in English and in the language understood by employees.
6. The remainder of the areas highlighted in yellow in Table II above should have safety signage that states “Hearing Protection Recommended in this area when Equipment in Operation,” unless CRTS decides to make hearing protection mandatory.

5.2 General Recommendations

1. Assure that employees are aware of the contents of this report. Employees have the right to review the content of this report and should be explained the results of the Monitoring discussed herein.