



JOB DEMANDS ANALYSIS

Company: City of Burnaby

Location: Works Yard

Job Title: Litter Pick - Up

Classification: Light Duty

Purpose of Activities

The purpose of the Litter Pick-Up position is to keep the public waste receptacles clean and empty and illegal signs out of site.

Tools and Equipment

The following tools and equipment are used to perform their duties:

- S-10 pick-up truck.
- Small auto driven dump device in the truck bed (run by remote).
- Radio.
- Extension post for pulling down signs.

Usual Methods – Litter Collection

1. Drive vehicle from works yard to first location (stop and activate flashing light). **
2. Get out of vehicle. **
3. Walk over to bin. **
4. Swing lid (0.64 metres high) to the side. **
5. Grasp the edge of the insert (metal or plastic) or the handles if so equipped. **
6. Pull the insert out of the container. **
7. Carry insert to the truck. **
8. Dump contents of insert into back of truck (1.20 metres high).
9. Carry insert back to container. **
10. Place insert back in container. **
11. Swing lid over. **
12. Return to the vehicle and drive a very short distance to next stop. **
13. Repeat steps 2 through 12 until back is full.
14. Drive to meet a garbage truck. **
15. Back truck up to garbage truck and empty with remote. **
16. Return to works yard after route is complete. **

Usual Methods – Sign Removal

1. Identify sign that is posted.



2. Get out of vehicle and approach sign location.
3. Remove sign by tearing it off its location.
4. For higher signs, an extension pole can be used to pull them down.

The presence of ** indicates non-value added tasks. These are tasks that do not contribute to the stated purpose of the work.

Administrative Issues

The shifts are flexible since this is an accommodative work task. On a normal day, an individual will dump between two and five loads per day. They will empty about 140 cans if they are working on the north side and about 125 if they are working on the south side.

The pace is determined by the worker and the load can be quite variable.

Activity Demand Variables

These variables are tasks that must be carried out by the employee and are implicitly or explicitly required as objectives of the job.

- Move lids of containers.
- Remove insert.
- Transferring the contents of the insert to the truck.
- Driving while seated in traffic.
- Work outside.
- Route determination.

Worker Decision Variables

These variables are the sub-routines and cognitive/physical decisions made by the worker in carrying out the objectives of the job.

- Choose postures for carrying out duties (outside of remaining seated, limited standing).
- Choose when to visit certain locations.
- Some control over pacing.
- Timing of breaks.

Accommodative Considerations

1. People with injuries to the spine in any region may have difficulty with the static and largely seated postures. They may also have difficulty with getting in and out of the vehicle several hundred times.
2. People with shoulder injuries such as rotator cuff tendinitis, bursitis and instability may have difficulty with the steady removal of the inserts from the containers.
3. People with any upper extremity problems may have difficulty with this position (especially grip related issues like carpal tunnel syndrome and epicondylitis).
4. The sitting required for this position would aggravate individuals with hemorrhoids or suffering from vascular insufficiency in the legs
5. There is no learning curve associated with this work.



Summary of Stresses

Metabolic Stresses

The aerobic energy system supplies the vast majority of energy required to complete the tasks in this position since the work can be characterized as being light activity with regular but moderate intensities of lifting. Some individuals with low aerobic fitness may be challenged by the regular in and out of the vehicle. There are possible exceptions in localized regions of the body, specifically the upper extremities and possibly muscles around the spine and in the region of the neck and shoulder. The tasks are sporadic in nature.

Structural Stresses

Spine – the sedentary nature of this work can place significant passive loads on the spinal structures. Prolonged sitting increases disc compression forces alone. If great care is not taken to control posture, it is not unusual to have people adopt a flexed spine posture that requires no activity from the torso musculature, but increases asymmetrical disc compression, passive stretch on the posterior ligaments and disc fibres. This can contribute to disc integrity problems over time as well as contributing to deconditioning of the torso support musculature.

Shoulders and Neck – due to the awkward nature of removing the inserts there is a requirement for shoulder elevation and abduction which places considerable load on the rotator cuff structures.

Arms and Hands – grip is a key issue with this job since the inserts are hard to grasp from inside the container requiring a pinch style grip. This can increase the risk for developing Carpal Tunnel Syndrome and medial epicondylitis (tennis elbow) respectively.

INTERVENTIONS

Recommendations that could be implemented to increase productivity and lessen the risk of injury are listed below:

1. Convert all of the inserts to plastic which are much lighter than the metal variety. This reduces the load that has to be moved because even when the insert is fairly empty, the metal ones are still heavy.
2. Attempt to fashion a handle on the insert that allows for a power grip position when handling the insert.
3. Provide regular education in effective use of the body and neutral joint positions for this type of work.

PJDC-Litter Pick-Up

Referral: Lana Ho		Organization: City of Burnaby						Title: Litter Pick Up		
Dept.: Engineering		Division: Sanitation						Contact:		
		FREQUENCY*						Date: February 25, 1999		
PHYSICAL DEMANDS		R E Q D	S I D E	Sel 1	Low 2	Mod 3	High 4	Max. Weight (kg)	Usual Weight (kg)	COMMENTS
S T R E N G T H	Lifting - Floor to Knuckle									
	Lifting - Knuckle to Waist		B				X	15	5	Insert from garbage container
	Lifting - Waist to Shoulder		B				X	15	5	Insert high enough to dump out in truck bed
	Lifting - Over Head									
	Carrying - With Handles									
	Carrying - Without Handles		B				X	15	3	Insert for less than four metres
	Pushing - Upper Extremity									
	Pushing - Hip/Leg Assist									
	Pulling - Upper Extremity		B				X	30	5	Inserts out of receptacle containers
	Pulling - Hip/Leg Assist									
	Reach - Shoulder or Above									
	Reach - Sho. or Above extnd									
	Reach - Below Shoulder		B				X	mod.	min.	Reach insert, reach into insert
	Reach - Bel. Shoulder extnd		B		X			mod.	min.	Reach insert, reach into insert
E N R G	Handling		B				X	mod.	min.	garbage can lids, vinyl/metal inserts
	Gripping		B				X	mod.	min.	Steering wheel, garbage containers(pinch)
	Fine Finger Movements		D			X		mod.	min.	Undoing lids on containers
	Aerobic (percent)						90			
P O S T U R E +	Anaerobic (percent)			10						Very occasional heavy lift, stuck insert
	High Energy Expenditure									
	Low Energy Expenditure						X			Sedentary and low exertion tasks for the most part
	Neck - Static Flexion									
M O B I L I T Y	Neck - Static Neutral									
	Neck - Static Extension									
	Neck - Rotation		B				X			Shoulder checking while driving
	Throwing									
	Sitting						X			In the vehicle for most of the shift (in and out frequently)
	Standing				X					Briefly while emptying garbage can or dumping the truck
	Walking				X					Less than 20 metres at a time
	Running/Jumping									
	Climbing - Arms and Legs									
	Climbing - Legs Only									
	Bending/Stooping				X					Pick up garbage off the ground
	Crouching									
	Kneeling									
	Crawling									
G E N	Twisting									
	Balancing									
	Traveling						X			Driving around Burnaby in small pick-up truck
	Work Alone						X			Usually
	Interact with Public						X			As a driver as well as with pedestrians on the street
	Operate Equip/Machinery						X			Drive a vehicle, work the dump on the vehicle
	Irregular/Extended Hours									

* Frequency Legend 1 = Seldom; Not Daily 2 = Low Daily Activity; < 1hr
3 = Moderate Demand; Repetition 1 - 3 hrs daily 4 = High Frequency Demand; Repetition > 3 hrs daily

The following shading denotes a HIGH RISK TASK: Modifications should be considered

REQD is marked with an X if the particular demand or category is relevant to the purpose of the job.

SIDE refers to the side or limb required to execute a task. If it is marked **E**, it indicates either side, the most common choice is listed first. **D** refers to dominant and **B** to both sides.

Referral:		Organization:				Title: see 1st page header			
Dept.:		Division:				Contact:			
PHYSICAL DEMANDS		R E Q D	S I D E	FREQUENCY*				COMMENTS	
				Sel. 1	Low 2	Mod. 3	High 4		
P E R C E P T I O N	Hearing - Conversations		B			X		Members of the public, occasional co-worker/supervisor	
	Hearing - Other Sounds		B				X	Motor, traffic, equipment	
	Vision - Far		B				X	Most activities	
	Vision - Near								
	Vision - Colour								
	Vision - Depth		B				X	Judging distance in driving and parking	
	Perception - Spatial		B				X	Working around objects, reaching into containers	
	Perception - Form								
	Feeling (Tactile)		B				X	Gauging grip pressure	
	Reading								
W O R K E N V I R O N M E N T	Writing								
	Speech						X	Occasional to members of the public & co-workers	
	Inside Work						X	Driving in vehicle	
	Outside Work						X	Most of the day	
	Hot Conditions >25 deg. C			X				Occasional in summer	
	Cold Conditions <10 deg.C			X				Occasional in winter	
	Humid					X		Wet weather is common especially in fall and winter	
	Dust						X	Always present except during rain or snow	
	Vapor Fumes						X	Exhaust of vehicles in traffic	
	Hazardous Machines						X	Other vehicles, garbage trucks	
	Proximity to Moving Object						X	People on sidewalks and cars on roadways	
	Noise						X	Traffic noises	
	Electrical Hazard								
	Sharp Tools								
	Radiant/Thermal Energy				X			Heat from windshield	
	Slippery Conditions								
	Vibration and Related					X		Jarring of vehicle in driving	
	Chemical Irritants								
	Organic Substances					X		Rotting food materials	
	Medical Waste			X				Possible syringes	
	Blood Products			X				Possible syringes	
	Congested Worksite								
	Lighting - Direct						X	Daylight	
	Lighting - Indirect								
	Lighting - Adjustable								
	Lighting - Fluorescent								
Lighting - Incandescent									
Lighting - Shadows etc.						X	Depending on location		

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For detailed descriptions of each of the different categories, please refer to the reference guide or inquire with Human Effort at 1-888-4EFFORT