

NWT Diamonds Project *Appendices*

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APPENDIX IV-A

Approach to Impact Assessment

NWT Diamonds Project

NWT Diamonds Project

Legend for Impact Assessment Matrix

Definitions

1) VEC (Valued Ecosystem Component)	Environmental attributes or components identified as a result of a social scoping exercise as having scientific, social, cultural, economic or aesthetic value
2) Project Activity	An activity conducted at various periods throughout project development that may have an effect on a VEC (e g, road construction, tailings disposal, etc)
3) Impact	The results of the effect of a project activity on the VEC (e g, habitat loss, elevated levels of suspended solids, etc)
4) Geographic Extent	The area over which an impact may occur (e g, the Koala Lake watershed)
5) Duration/Frequency	The time period over which an impact may occur or the number of times in that period the impact can occur
6) Reversibility	Indicates the degree to which an impact is reversible (see table below)
7) Ecological/Social Context	Indicates how an impact can indirectly affect other environmental components related to the VEC
8) Probability	Indicates how likely an impact is to occur (see table below)
9) Future Capacity of Renewable Resources/ Sustainable Development	Indicates whether or not an impact will affect the capacity of renewable resources to meet the needs of the present and those of the future (see table below)
10) Mitigation	Indicates how the severity of an impact can be reduced, prevented or eliminated
11) Significance of Residual Effects	Indicates the degree to which the VEC has been/ could be affected after mitigation has been implemented (see table below)

Significance of	Types o	f Environmental Com	ponents
Residual Effects	Physical	Biological	Socioeconomic
Major	parameter affected	whole stock or	whole population of
	within most of	population of	Northwest Territories
	ecozone for	ecozone affected	affected over several
	several decades	over several generations	generations
Moderate	parameter affected	portion of population	community affected
	within most of	of ecoregion affected	over one or more
	ecoregion for one or	over one or more	generations
	more decades	generations	
Minor	parameter affected	a specific group of	a specific group of
	within most of	individuals within an	individuals within a
	ecosection during less	ecosection affected	community affected
	than one decade	during less than one	during less than one
		generation	generation
Negligible	parameter affected	a specific group of	a specific group of
88	within some part of	individuals within an	individuals within a
	ecosection during a	ecosection affected	community affected
	short period	during a short period	during a short period

Ratings used for the significance of residual effects in the impact assessment matrix

PHYSICAL AND BIOLOGICAL IMPACT ASSESSMENT MATRIX (EXPLORATION/ PRE-PROJECT PERIOD)

VEC	Project Activity	Potential Impact	Impact Attributes									
		Dond traffin	Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sustainable Develop.	Mitigation	Significance of Residual Effects		
Air Quality	Road traffic	Increase in ambient particle concentrations	Along each side of unpaved roads	Throughout exploration	High (partic- ulates are quickly dispersed)	Dust deposition on plants may affect plant populations and wildlife	High	High	Impact of dust reduced by snow cover; watering of roads	Negligible		
	Bulk sampling plant, airstrip, and diesel power generation	Increase in ground level NO _x , SO ₂ , CO TSP concentrations	Around exploration camp	Throughout exploration	High (emis- sions are quickly diluted by surrounding air)	May affect plant pop- ulations and wildlife	High	High	None	Negligible		
Permafrost	Road construction	Thaw and resulting settlement	Road system	Summer periods, until mid-1995	Low	Surface stability alteration	Low/ moderate	Unknown	Proper design and construc- tion of roads	Negligible		
Eskers	Quarry for construction material	Removal of material from esker	Eskers in area around site	Throughout exploration	Nil	Possible displacement of wildlife	High	High	Site rehabilitation	Minor		
Water Quality	Winter drilling (through ice)	Elevated levels of suspended solids, dissolved Al	Particular lake being drilled, maybe local streams	Winter, throughout exploration	High (settling and dilution)	Effects on aquatic life/habitat	High	High	Treatment and drilling methods to minimize sediment discharge	Negligible		
	Road construction	Elevated levels of suspended solids	Lakes, streams adjacent to roads	Summer periods, until mid-1995	High (settling and dilution)	Effects on aquatic life/habıtat	Low	High	None	Negligible		

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Water Quality	Bulk sampling, tailings pond discharge	Elevated TSS, Al (total and dissolved), Ni (total)	Larry Lake	During exploration bulk sampling	High	Disturbance to aquatic life	Low	High	Discharge control	Negligible
Fish/ Aquatıc Habıtat	Winter drilling (through ice)	Elevated turbidity and pH	Panda, Koala, Leslie, Fox 1, and Misery	Winter, throughout exploration	High (settling and dilution)	Disturbance to aquatic life	High	High	Treat drill water for pH, suspended solids, and Al	Negligible
	Tailing and sewage disposal (spills and leaks)	Elevated turbidity, Al, and pH; infilling	Larry Lake	During exploration bulk sampling	High	Disturbance to aquatic life; loss of habitat	High	High	Spill contingency program	Negligible
	Road construction	Increased turbidity and siltation	Lakes/streams adjacent to roads	Runoff and precipitation	High (settling and dilution)	Potential disturbance to aquatic life	High	High	None	Negligible
	Road construction	Loss of migration routes	Stream crossings	During periods of low flow throughout exploration	Nil/ low (not until culvert removal)	Disturbance to spawning activities	Moderate	High	Use diversion ditches and culvert reconstruction	Negligible/ minor
	Freshwater supply	Shoreline modification, habıtat alteratıon	Little Lake	To end of 1996	High (will return to normal after 1996)	Potential disturbance to fish; loss of habitat	Low/ moderate	High	None	Negligible
Vegetation	Land-based drilling	Damage and loss of vegetation	At drill sites	<1 year	Moderate	Small-scale disturbance to habitat/ vegetation	High	High	Reclaim site if necessary	Negligible

VEC	Project Activity	Potential Impact	Impact Attributes									
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects		
Vegetation	Diesel power generation	Direct effect on vegetation	Around explor- ation camp	Year-round	Low	Possible soil Impact	Low	High	Maximize fuel efficiency	Negligible		
Wildlife/ Wildlife Habıtat	Roads	Habitat loss	Exploration road system (Fox, Panda)	Throughout exploration	Low	Alteration of migration corridors; wildlife habituation	High	High	Employee education	Negligible		
	Bulk sampling facility	Habitat loss; habituation of wildlife	Facility and adjacent habitats	During exploration bulk sampling	Moderate	Wildlife displacement	Low	High	Employee education	Negligible		
Caribou	Human activity	Changes in habitat use; alteration in grazing patterns	Claim block	Summer only throughout exploration	High	Reduced caribou and predator use of the area	Low	High	Employee awareness during mıgratıon	Negligible		
	Roads	Loss of habitat; altered movements	Road system (excluding winter road)	Throughout exploration	Low	Reduced caribou and predator use of the area	Low	High	None	Negligible		
	Bulk sampling facility	Loss of habitat; altered movements	Facility and surrounding habitats	During exploration bulk sampling	Low	Reduced caribou and predator use of the area	Low	High	None	Negligible		
	Winter roads	Diversion of caribou from migration routes	Winter roads - primarily north shore of Lac de Gras	2 weeks during spring, throughout exploration	High	Reduced caribou and predator use of the area	Low (few caribou in the area at this time)	High	None	Negligible/ minor		

VEC	Project Activity	Potential Impact	Impact Attributes									
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects		
Caribou	Noise	Disturbance of caribou	Roads and bulk sampling facility	During caribou migration throughout exploration	High	Reduced caribou and predator use of the area	Low	High	None	Negligible/ minor		
	Tailings disposal	Reduced water quality	Tailings Impoundment	Summer only, throughout exploration	High	No effects as water quality parameters are acceptable	Low	High	None	Negligible		
Grızzly Bears	Human activity	Alterations in habitat use and feeding patterns	Claim block	Summer only, throughout exploration	High	Reduced grizzly use of area	Low	High	Employee education on bear safety	Negligible		
	Roads	Loss of feeding and denning habitat; altered movements	Road system (excluding winter road)	Throughout exploration	Nil	Reduced grızzly use of area	Low	High	None	Minor		
	Bulk sampling facility	Loss of habitat; altered movements	Facility and surrounding habitats	Throughout exploration	Moderate	Reduced grızzly use of area	Low	High	None	Minor		
	Noise	Displacement from habitats	Roads and bulk sampling facility	Mainly summer, throughout exploration	High	Impacts on other species, including humans	Moderate	High	None	Minor		

VEC	Project Activity	Potential Impact				Impact A	Attributes			
		-	Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Fish/Aquatic Habitat	Dam construction	Elevated turbıdity, siltatıon	Long Lake and Panda Lake	During con- struction and 1 year after construction is complete	High (settling and dilution)	Potential disturbance to aquatic habitat	High	High	Contain area of construction	Negligible
	Dam construction	Loss of migration routes	Long Lake and Panda Lake	Throughout construction	Moderate	Potential disturbance to aquatic life	High	Moderate	Diversion channel between Kodiak and Panda	Minor
	Lake dewatering	Habıtat loss	In 7 lakes	Throughout construction	Nil/ low (habitat probably unrecoverable)	Will affect all 7 lake populations	High	Low	Compensation for habitat loss	Negligible/ minor
	Lake dewatering	Changes in flow regimes	Downstream from dewatering site	Approximately 2 months each year, throughout construction	High (will return to normal after construction)	Will affect populations in downstream water systems	High	High	Ensure maximum flow doesn't exceed 1/2 of peak flow	Negligible
	Lake dewatering	Elevated turbidity and sedimentation	Downstream from dewatering site	2-4 months each year, throughout construction	High (solids will settle out)	Decreased water quality, may affect lake populations	High	High	Treat in settling ponds when necessary	Negligible
Vegetation	Diesel power generation	Direct effect on vegetation	Project site	Throughout construction	Low	Possible soil Impact	Low	High	Maximize fuel efficiency; regular engine/vehicle maintenance	Negligible

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Wilderness	Human activity	Loss of wilderness experience	Project site	Throughout exploration	Moderate (depends on success of reclamation)	Loss of wilderness	High	Moderate (depends on success of reclamation)	Minımıze presence ın area	Minor
Biodiversity	Human activity	Loss of vegetation, aquatic and wildlife species	Project site	Throughout exploration	High	Effect on ecosystem	Low	High	Employee education to increase awareness of surroundings	Negligible
Hydrology	Road construction	Affects surface drainage	Around roads, especially at stream crossings	Throughout exploration	Moderate	Effect on vegetation productivity	High	High (local active layer disturbance throughout period)	Engineer/ construct roads to limit impacts	Negligible/ minor
Climate	Drilling, diesel power generation	Heat island effect	Buildings in and around site	Throughout exploration	High	Increase in local temperature	Low	High	None	Negligible
	Construction of exploration camp and bulk sampling facility	Alteration of wind regime	Buildings in and around site	Throughout exploration	High	Alteration of local wind patterns and deposition of snow	Low	High	None	Negligible

IMPACT ASSESSMENT MATRIX

(CONSTRUCTION PERIOD)

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Aır Quality	Blasting for preparation of site for permanent camp	Increase in ambient dust concentrations	Around permanent site	Throughout construction	High (dust deposition and ambient concentrations will diminish quickly)	Vegetation may be affected by localized dust deposition	High	High	Watering or dust suppressants as required	Negligible
	Road traffic	Increase in ambient dust concentrations	Corridor along each side of road	Daily, throughout construction	High (dust deposition and ambient concentrations will diminish quickly)	Vegetation may be affected by localized dust deposition	High	High	Road watering	Negligible
Permafrost	Road and dam construction	Surface settlement adjacent to roads	Roads over ice rich terrain	Throughout construction	Nil	Possible change of vegetation types	Low	Unknown	Proper design of roads and dams	Negligible
Eskers	Quarry development	Removal of esker material	Immediate vicinity of esker	Throughout construction	Nil	Displacement of wildlife	High	High	Site rehabilitation	Minor
Water Quality	Road, facilities, infrastructure construction	Elevated dust, suspended solids	Lakes proximal to area in question	Throughout construction	High (settling and dilution)	Effects on aquatic habitat	High	High	None	Negligible/ minor
Fish/ Aquatic Habitat	Panda diversion channel	Elevated turbidity, siltation	Kodiak Lake	During con- struction and 1-2 years after construction is complete	High (settling and dilution)	Potential disturbance to aquatic habitat	High	High	Stabilize banks, mını- mıze distur- bance to surrounding vegetatıon	Negligible

CONSTRUCTION PERIOD

VEC	Project Activity	tivity Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Vegetation	Pre-stripping; construction of rock dumps and roads; esker excavation	Loss of vegetation by excavation or burial	Localized to area of development	Throughout construction	None	Loss of habitat	High	Moderate	Revegetation of roads, rock dumps and tailings impoundment	Negligible/ minor
Wildlife/ Wildlife Habıtat	Roads	Habıtat loss	Road system (excluding winter road)	Throughout construction	Nil	Migration corridor alteration; displacement; collisions	Low/ moderate	High	Vehicle speed controls; driver awareness training	Negligible/ minor
	Process plant	Habitat loss	Plant and adjacent habitats	Throughout construction	Moderate/ high	Displacement of wildlife	Low/ moderate	High	None	Negligible/ minor
Caribou	Human activity	Alterations in habitat use and grazing patterns	Claim block	Summer only, throughout construction	High	Reduced use of area by caribou and carnivores	Low	High	Employee education	Negligible/ minor
	Roads	Loss of habitat; altered movements	Adjacent to roads	Throughout construction	Nil	Reduced use of area by caribou and carnivores	Low	High	None	Negligible/ minor
	Process plant	Loss of habitat; altered movements	Plant and surrounding habitats	Throughout construction	Nil	Reduced use of area by caribou and carnivores	Low	High	None	Negligible/ minor

CONSTRUCTION PERIOD

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Caribou	Panda diversion channel	Habitat loss; altered movements	Channel and surrounding habitats	Throughout construction	Nil	Reduced use of area by caribou and carnivores	Low	High (few caribou will be affected)	Employ means of diverting caribou	Negligible/ minor
	Noise	Disturbance of caribou	Roads and bulk sampling facility	When caribou are in the area	High	Reduced use of area by caribou and carnivores	Low	High	None	Negligible/ minor
	Tailings disposal	Reduced water quality	Tailings Impoundment	When caribou are in the area	High	No effects as water quality parameters are acceptable	Low	High	None	Negligible/ minor
Grızzly Bears	Human activity	Alterations in habitat use, feeding patterns	Claim block	Summer only, throughout construction	High	Reduced use of area by grizzly bears	Low	High	Employee education	Negligible/ minor
	Roads	Loss of denning and feeding habitat	Road system (excluding winter roads)	Summer only, throughout construction	Nil	Reduced use of area by grizzly bears	Low	High	Minımıze esker disturbance	Minor
	Process plant	Loss of habitat; altered movements	Plant and surrounding habitats	Summer only, throughout construction	Nil	Reduced use of area by grizzly bears	Low	High (poor habıtat for grızzlies)	None	Negligible/ minor
	Noise	Displacement from habitats	Roads and process plant	Summer only, throughout construction	High	Reduced use of area by grizzly bears	Low	High (poor habitat for grizzlies)	None	Minor

VEC	Project Activity	Potential Impact	Impact Attributes									
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects		
Wilderness	Human activity	Loss of wilderness experience	Project site	Throughout construction	Moderate (depends on success of reclamation)	Loss of wilderness	High	Moderate (depends on success of reclamation)	Minımıze area of land disturbed	Minor		
Biodiversity	Human activity	Loss of vegetation, aquatic and wildlife species	Project site	Throughout construction	High	Effect on ecosystem	Low	High	Employee education	Negligible		
Hydrology	Lake dewatering	Decrease in lake storage	Lake being dewatered	Throughout construction	High (hydro- logic regime will be reestablished)	Watershed affected	High	Moderate (larger lakes will be formed as pits fill following closure)	None	Negligible		
	Lake dewatering	Increase in stream flows	Koala and Misery watersheds	During times of dewatering, throughout construction	High (streams will establish natural flows after lakes are drained)	Will increase available aquatic habitat	High	High (stream flows will reestablish after closure)	Control stream flows	Negligible		
	Stream diversions	Altered flows	Watercourses around pits	Throughout construction	Nil/ low (irreversible in most of Long Lake drainage)	Alteration of runoff and flows of some streams	High	Moderate (new drainage system will eventually be established)	None	Minor		
	Panda diversion channel	Dımınıshed stream flows	Panda and Koala lakes	Throughout construction	High	Will provide additional stream habitat for fish	High	High	None	Negligible		

CONSTRUCTION PERIOD

VEC	Project Activity	Potential Impact	Impact Attributes								
Climete	Dissel		Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects	
Climate	Diesel power generation, construction	Heat island effect	Buildings in and around site	Throughout construction	High	Possible Increase in local tem- perature	Low/ moderate	High	Conservation of fuel	Negligible	
	Construction of buildings and infra- structure	Alteration of wind regime	Buildings in and around site	Throughout construction	High	Construction of buildings may alter local wind patterns and deposition of snow	High	High	None	Negligible	
Groundwater	Lake dewatering	Change in flow regime	Perimeter of open pits	Throughout construction	High	Alteration of groundwater flow pattern	Low	Unknown	None	Negligible	

IMPACT ASSESSMENT MATRIX

(OPERATION PERIOD)

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Aır Quality	Operation of process plant; blasting in open pits	Increase in ambient dust, NO _x , SO ₂ , CO concentrations	Around plant and each pit	Throughout operation	High (due to hıgh dilution rates)	May affect vegetation and visibility	High	High	Fabric filters; dynamic scrubbers for plant; blasting techniques	Negligible
	Diesel power generation and boiler operation	Increase in NO _x , SO ₂ , CO TSP concentrations	Around site	Throughout operation during inver- sions (mainly in winter)	High (due to high dilution rates)	May affect vegetation and visibility	High	High	Use of low sulphur diesel fuel; stacks to help increase dispersion	Negligible
	Haul road traffic, wind erosion of waste rock dumps	Increase in dust deposition and ambient dust concentrations	Corridor along each side of haul roads	Throughout operation (depends on soil moisture and wind speed)	High (due to high dilution rates)	May affect visibility and vegetation	High	High	Road watering	Negligible
	Heavy equipment exhaust emissions	Increase in NO _x , SO ₂ , CO TSP concentrations	Around heavy equipment	Throughout decommis- sioning during inversions (mainly in winter)	High (due to high dilution provided by surrounding air)	May affect employees, wildlife, and vegetation	High	High	Proper engine/ vehicle maintenance	Negligible
Permafrost	Tailings deposition	New permafrost will form	Long Lake basın	Throughout operation	Nil	Will stabilize surface	High	Low	None	Negligible
Water Quality	Discharge of tailings water	Possible elevated TSS and metals	Long Lake outflow to Nema Lake	Throughout operation	High	Effects on aquatic life	Low/ moderate	High	Meet discharge criterıa	Negligible

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Fish/ Aquatic Habitat	Freshwater supply	Lake drawdown (loss of habitat)	Koala and Grızzly Lakes	Throughout operation	High	Loss of habi- tat, potential disturbance to fish	High	Moderate (habıtat will reestablish when lake refills	None	Negligible/ minor
	Haul road traffic	Increased siltation	Extent of haul road system	Each winter and spring breakup, throughout operation	High	Potential disturbance to aquatic life	Moderate	High	Stream crossing maintenance	Negligible/ minor
	Waste rock dumping	Water quality degradation by drainage	Waters adjacent to and downstream from operation	Throughout operation	High	Potential disturbance to fish	Moderate	High	Water quality monitoring	Negligible
Vegetation	Excavation of pits/eskers, roads, rock dumps	Loss of vegetation by excavation or burial	Localized to area of development	Throughout operation	Nil	Loss of habitat	High	Moderate (lost habitat may be replaced by reclamation)	Revegetation of roads and rock dumps	Negligible/ minor
	Diesel power generation	Direct effect on vegetation	Project site	Throughout operation	Low	Possible soil Impact	Low	High	Maximize fuel efficiency; regular engine/vehicle maintenance	Negligible
	Winter roads	Physical damage to vegetation	Winter road system	Winter, throughout operation	Low	Potential damage to vegetation and change in permafrost	Moderate	Moderate (loss of habitat in damaged areas, should grow back)	Proper construction of roads, use of winter roads	Minor

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Wildlife/ Wildlife Habıtat	Roads	Habitat loss	Roads and Immediate VICINITY	Throughout operation	High	Alteration of migration corridors; wildlife displacement; collisions	Low/ moderate	High	Vehicle speed controls; driver aware- ness training; reclamation	Negligible
	Process plant	Habitat loss	Plant and adjacent habitats	Throughout operation	Moderate/ high	Loss of habitats/ displacement of wildlife	Low/ moderate	High	Site reclamation	Negligible
Caribou	Human activity	Alterations in habitat use and grazing patterns	Claim block	Summer only, throughout operation	High	Reduced use of area by caribou and carnivores	Low	High	Employee education	Negligible/ minor
	Roads	Loss of habitat; altered movements	Road system	Throughout operation	High	Reduced use of area by caribou and carnivores	Low	High	Employee education	Negligible/ minor
	Process plant	Habitat loss; altered movements	Facility and surrounding habitats	Throughout operation	High	Reduced use of area by caribou and carnivores	Low	High	Reclamation	Negligible
	Panda diversion channel	Habitat loss; altered movements	Channel and surrounding habitats	Throughout operation	Nil	Reduced use of area by caribou and carnivores	Low	High	Employ means of diverting caribou	Negligible/ minor
	Noise	Disturbance of caribou	Roads, pits and process plant	When caribou are in the area	High	Reduced use of area by caribou and carnivores	Low	High	None	Negligible/ minor

VEC	Project Activity	Potential Impact		, 		Impact A	Attributes			
		Induced	Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Caribou	Tailings disposal	Induced toxicity of drinking water	Tailings Impoundment	When caribou are in the area	High	No effects as water quality parameters are acceptable	Low	High	Use traditional caribou diversion methods	Negligible
Grızzly Bears	Human activity	Alterations in habitat use and feeding patterns	Claim block	Summer only, throughout operation	High	Reduced use of areas by grizzly bears	Low	High	Employee education on bear safety	Minor
	Roads	Loss of habitat; altered movements	Road system (excluding winter road)	Summer only, throughout operation	Nil	Reduced use of areas by grizzly bears	Low/ moderate	High	Minımıze esker disturbance	Minor
	Process plant	Loss of feeding and denning hab- itat; altered movements	Plant and surrounding habitats	Throughout operation	High	None (poor habitat for grizzly bears)	Low	High	Reclamation	Negligible/ minor
	Noise	Displacement from habitats	Roads, pits and process plant	Reduced use of areas by grızzly bears	High	Impacts on other species, including humans	Low	High	None	Minor
Wilderness	Human activity	Loss of wilderness experience	Project site	Throughout operation	Moderate (depends on success of reclamation)	Loss of wilderness	High	Moderate (depends on success of reclamation)	Minimize presence in area	Minor
Biodiversity	Human activity	Loss of vegetation, aquatic and wildlife species	Project site	Throughout operation	High	Effect on ecosystem	Low	High	Employee education	Negligible

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Hydrology	Mining	Alteration of stream flows and channels	Streams in affected watersheds	Throughout operation	High (stream flows will reestablish)	Will affect fish and aquatic habitat	High	High	Install drain- age ditches and divert surface flows	Minor
	Diversion of Long Lake outflow to Nema Lake	Stream flow reduction downstream of Moose lake	Lower Koala watershed	Throughout operation	Low	Will affect fish, aquatic habitat, and runoff	High	Moderate	Potential for timed release of water	Minor
Climate	Mining and diesel power generation	Heat Island effect	Buildings and open pits	Throughout operation	High	Increases in local temperature	High	High	Fuel conserva- tion; insulated buildings	Negligible
	Mining and diesel power generation	Alteration of wind regime	Buildings and open pits	Throughout operation	High	Alteration of wind patterns and deposition of snow	High	High	None	Negligible
	Mining and diesel power generation	Thermal inversions	Open pits	Throughout operation	High	Temperature inversions and pollution in pits	High	High	Change area of activity	Negligible
	Mining and diesel power generation	Climate change	Region around site	Throughout operation	High	Global warming	Low	High	None	Negligible
	Waste rock dumps	Change in precipitation regime	Project area	During precip- itation events, throughout operation	Unknown	Changes in precipitation due to oro- graphic effect	Unknown	Unknown	None	Unknown (negligible)
Groundwater	Mining	Change in flow regime	Perimeter of open pits	Throughout operation	High	Alteration in flow pattern, effect on talik under pits	High	Unknown	None	Negligible

IMPACT ASSESSMENT MATRIX (DECOMMISSIONING PERIOD)

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Aır Quality	Heavy equipment exhaust emissions	Increase in NO _x , SO ₂ , CO TSP concentrations	Around heavy equipment	Throughout decommis- sioning during inversions (mainly in winter)	High (due to high dilution provided by surrounding air)	May affect employees, wildlife, and vegetation	High	High	Proper engine/ vehicle maintenance	Negligible
Permafrost	Tailings and surface restoration	New permafrost will form	Long Lake basın	Throughout decommis- sioning	Nil	Will stabilize landscape	High	High	None	Negligible/ minor (positive)
Fish/ Aquatic Habitat	Dump reclamation	Increased turbidity and sedimentation in adjacent watercourses	Remaining waste dumps not yet reclaimed	Throughout decommis- sioning	High	Potential disturbance to fish	Moderate	High	Control runoff	Negligible/ minor
	Tailings reclamation	Increased turbidity and sedimentation	Downstream watercourses in Long Lake basin	Throughout decommis- sioning	High	Potential disturbance to fish	Moderate	High	Control runoff	Negligible/ minor
	Removal of culverts and bridges	Increased turbidity and sedimentation	Receiving waters in project area	One year	High (solids will settle out)	Potential disturbance to fish	Moderate	Moderate	Control runoff	Negligible/ minor
	Road reclamation	Increased turbidity and sedimentation	Road corridors	One year	High (solids will settle out)	Potential disturbance to fish	High	Moderate	None	Negligible/ minor

DECOMMISSIONING PERIOD

VEC	Project Activity	Potential Impact				Impact A	Attributes	· · · · · · · · · · · · · · · · · · ·		. <u> </u>
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Vegetation	Reclamation of dumps, roads, site, and Long Lake tailings	Revegetation of disturbed areas	Localized to area of activity	1-2 years	Nil	Reestablish- ment of plant communities	High	Unknown (potential for overall increase in habitat quality if reclamation successful)	None	Minor (posıtıve)
	Diesel power generation	Direct effect on vegetation	Project site	Throughout decommis- sioning	High	Possible soil Impact	Low	High/ moderate	Maximize fuel efficiency; regular engine/vehicle maintenance	Negligible
Wildlife/ Wildlife Habitat (grizzlies and caribou)	Reclamation activities (recontouring, revegetating, etc.)	Increase in wildlife habitat	Project site	Throughout decommis- sioning	High	Return of habitat	Low	High	Not applicable	Negligible (positive)
Wilderness	Human activity	Loss of wilderness experience	Project site	Throughout decommis- sioning	Moderate (depends on success of reclamation)	Loss of wilderness	High	Moderate (depends on success of reclamation)	Minimize presence in area	Negligible
Hydrology	Mine closure	Alteration of lake storage	Lakes affected by mining	Throughout decommis- sioning	Nil for Long Lake, high for others	Pits remain, lake storage still affected	High	High	None	Negligible
	Stream diversions	Alteration of surface drainage and flows	Streams in affected watershed	Throughout decommis- sioning	Nil (Long Lake watershed); low (Panda and Koala If lakes returned to watershed)	Alteration of flows	High	Moderate (new lake drainage network will be established)	None	Minor

DECOMMISSIONING PERIOD

VEC	Project Activity	Potential Impact	Impact Attributes								
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects	
Climate	Reclamation activities and diesel power generation	Heat island effect	Buildings	Throughout decommis- sioning	High	Increases in local temperature	High	High	Fuel conser- vation; insulated buildings	Negligible	
	Reclamation activities and diesel power generation	Alteration of wind regime	Buildings and waste rock dumps	Throughout decommis- sioning	High	Alteration of wind patterns and deposition of snow	High	High	Impact may be reduced when buildings are removed	Negligible	
	Waste rock dumps	Change in precipitation regime	Project area	During precip- itation events, throughout decommis- sioning	Unknown	Changes in precipitation due to orographic effect	Unknown	Unknown	None	Unknown (negligible)	

IMPACT ASSESSMENT MATRIX

(POST-DECOMMISSIONING PERIOD)

VEC	Project Activity	Potential Impact				Impact A	Attributes			
			Geographic Extent	Duration/ Frequency	Reversibility	Ecological / Social Context	Probability	Future Capacity of Renewable Resources/ Sust. Develop.	Mitigation	Significance of Residual Effects
Aır Quality	Wind erosion of waste rock dumps	Increase in ambient dust concentrations	Around waste rock dumps	In snow-free periods until vegetation has been reestablished	Low (not readily rever- sible except during periods of rain)	Dust deposition on plants	High	High	None	Negligible
Water Quality	Drainage from waste rock dumps	Possible reduction in water quality	Watercourses adjacent to waste rock dumps	Until material has been stabilized by permafrost	High	Habitat degradation, potential disturbance to fish	Low	High	None	Negligible
Fish/ Aquatic Habitat	Drainage from waste rock dumps	Habıtat degradatıon	Watercourses adjacent to waste rock dumps	Until material has been stabilized by permafrost	High	Habitat degra- dation, poten- tial distur- bance to fish	Low	High	None	Negligible
Wilderness	Permanent landscape alteration	Loss of wilderness experience	Pits and waste rock dumps	Indefinitely	High	Small loss of wilderness area	Low	High	None, pits will eventually fill naturally	Negligible
Hydrology	Filling of pits	Lakes will be restored	Pits that have been mined- out	Up to 200 years	Low	Larger lakes will be formed	High	Low	None	Minor (positive)
Climate	Presence of waste rock dumps	Alteration of wind regime	Waste rock dumps	Indefinitely	High	Alteration of wind patterns	Low	High	None	Negligible
	Presence of waste rock dumps	Change in precipitation	Project area	Indefinitely	Unknown	Changes in precipitation due to oro- graphic effect	Unknown	Unknown	None	Unknown (negligible)

APPENDIX IV-B

Physical Impacts and Mitigation

NWT Diamonds Project

NWT Diamonds Project

**Project No. 4551 BHP Minerals Canada NWT Diamonds **Modeller: Dan Jarratt, Rescan Environmental Services **The contaminant being modelled is CO ** ** All met data is from the Koala Camp Weather Station ** To run the model type: ** ** ISCST2EM K2001CO.INP K2001CO OUT ** ** The results for this problem are provided in file K2001CO.OUT. ** **NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM 16 9 M TO 22 9 M FOR THIS MODEL ITERATION THE FUEL FOR THE DIESEL ** POWER STATION CONTAINS 0 05 WT % SULPHUR THE CO EMISSION RATE HAS ** BEEN INCREASED BY 30% TO ACCOUNT FOR AIR QUALITY PERMIT APPLICATION ** PURPOSES THE EVENT PROCESSOR WILL NOT BE USED FOR THIS ITERATION ** THE POWER GENERATORS @ 82 5 % OF FULL LOAD WILL BE USED TO PLOT ** 1-HOUR CO CONCENTRATIONS ** The COntrol parameters for this model run are as follows: CO STARTING TITLEONE BHP NWT Diamonds CO MODELOPT DFAULT RURAL CONC AVERTIME 1 8 PERIOD POLLUTID CO TERRHGTS ELEV ELEVUNIT METERS RUNORNOT RUN ERRORFIL ERRORCO OUT CO FINISHED ** The SOurces included in this model run are as follows: SO STARTING SO LOCATION CAT3616A POINT 43.0 45.0 466.0 ** The diesel power plant will operate at 70% of full load for 24 h/day. ** The emiaaion rates have already been adjusted, so use a emission ** factor of 1.0. SO EMISFACT CAT3616A HROFDY 24*1.0 466 0 SO LOCATION CAT3616B POINT 51 0 43.0 SO EMISFACT CAT3616B HROFDY 24*1.0 SO LOCATION CAT3616C POINT 43 0 57 0 466 0 SO EMISFACT CAT3616C HROFDY 24*1.0 466 0 SO LOCATION CAT3616D POINT 43.0 63 0 SO EMISFACT CAT3616D HROFDY 24*1 0 SO LOCATION GLYBOILA POINT 12 0 -188 0 466.0 ** The diesel fired heating boilers both operate Dec.-Mar., one boiler operates ** Sept., Oct., Nov and Apr , no boiler operation May to August; ** adjust emission factors accordingly Each boiler runs at avg 75% of full ** load SO EMISFACT GLYBOILA MONTH 3*0.75 8*0.0 1*0 75 SO LOCATION GLYBOILB POINT 17.0 -188.0 466 0 SO EMISFACT GLYBOILB MONTH 4*0 75 4*0 0 4*0.75 ** The diesel generators will use 0 05% wt sulfur fuel, the heating boilers ** will use No. 2 distillate fuel @ 0 2% wt sulfur (no emission estimates ** avail for boiler using low sulfur fuel)

	Point Sour		QS	HS	TS	vs	DS			
* *	Parameters	3:			•					
SO	SRCPARAM	CAT3616A	0 882	22 9	9 712	20	2 0.9			
SO	SRCPARAM	CAT3616B		22 9	ə 712	20	2 0.9			
SO	SRCPARAM	CAT3616C		22 9		20	2 0.9			
SO	SRCPARAM	CAT3616D	0 882	22.9	9 712	20	2 0.9			
so	SRCPARAM	GLYBOILA	0.065	11.5	433	70	06			
SO	SRCPARAM	GLYBOILB	0.065	11 5	433.	7.0	06			
**	Building	heights a	nd widt	ths are	e inpu	t for	calcula	ation of	of buil	lding
**	downwash.	. Buildin	g widt]	hs are	input	begin	ning wi	ith th	e 10 de	egree
* *	flow vect	or and in			7 10 d	egrees	clock	vise		
	BUILDHGT	CAT3616A	36*13	.9						
	BUILDWID	CAT3616A	0 0	0.0	0 0	0 0	0 0	0 0	0 0	0 0
		CAT3616A	0 0	0 0	0.0	0.0	0 0	0.0	0.0	0 0
		CAT3616A	00	3.00	3 05	3 19	3 46	3 92	4 67	6 00
		CAT3616A	8.77	17 28	30 00	30 46	31 93	34 64	39 16	46 67
		CAT3616A	60 00	54 27	51.79	51.00)			
	BUILDHGT	CAT3616B	36*13	9						
	BUILDWID	CAT3616B	0 0	0 0	0.0	0.0	0.0	0.0	0.0	0 0
		CAT3616B	0.0	0.0	0 0	0 0	0 0	0 0	0.0	0.0
		CAT3616B	0 0	9.00	9 14	958	10 39	11 75	14 00	18 00
		CAT3616B	26 31	30.46	30.00	30.46	31 93	34.64	39 16	46 67
		CAT3616B	51 96	47.89	45 69	45 00	ł			
	BUILDHGT	CAT3616C	36*13	. 9						
	BUILDWID	CAT3616C	0.0	0 0	0 0	0 0	0.0	00	0 0	0.0
		CAT3616C	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0.0
		CAT3616C	0 0	15.00	15.23	15.96	17 32	19 58	23 33	30 00
		CAT3616C	31 93	30.46	30 00	30.46	31 93	34 64	39 16	46 67
		CAT3616C	45.03	41 50	39 60	39 00	ł			
	BUILDHGT	CAT3616D	36*13	.9						
	BUILDWID	CAT3616D	0 0	0 0	0.0	0 0	0 0	0 0	0.0	0 0
		CAT3616D	0 0	0 0	0.0	0 0	0 0	0 0	0.0	0 0
		CAT3616D	0 0	21 00	21.32	22.35	24 25	27 41	32.67	34 64
		CAT3616D	31 93	30 46	30.00	30 46	31.93	34.64	39.16	43 08
		CAT3616D	38 11	35 12	33.51	33 00)			
	BUILDHGT	GLYBOILA	36*8.	5						
	BUILDWID	GLYBOILA	2 03	2.13	2 31	2 61	3 11 4	4 00	585	11,52
		GLYBOILA	21 00 3	21.32 2	22.35	14.00	10 89	9 14	8 08	7.45
		GLYBOILA	7.11	7.00	7.11	7 45	8 08	9 14	10 89 3	14.00
		GLYBOILA	22 35 3	28 43 2	28.00	21 00	11.52	5.85	4.00	3 11
		GLYBOILA	2 61	2 31	2.13	2 00				
	BUILDHGT	GLYBOILB	36*8	5						
	BUILDWID	GLYBOILB	2.03	2 13	2.31	2 61	3 11	4 00	5.85	11 52
		GLYBOILB	16.00	16 25 3	17.03	14.00	10 89	9 14	8 08	745
		GLYBOILB	7.11	7 00	7 11	7.45	8,08	9 14	10 89	14.00
		GLYBOILB	22 35	33 51 3	33 00	21.00	11.52	5.85	4 00	3 11
		GLYBOILB	2 61	2 31	2 13	2 00				
**	The ener	pits are	aleo c	ourcoc	of CO	omica	niona f	rom mo	hile e	auinment
**	_	Panda Pit		CULCES	UL CO	CUTPP	,	mo	~ 6	Jorbuiono.
	LOCATION			0 120	0 460					
	EMISFACT				5 400					
	SRCPARAM				600 0					
50	ONCEMMI	CUNDER A.		~ V	000 0					

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**
   Secondly, Koala Pit
SO LOCATION KOALAP AREA 500. 300. 460
SO EMISFACT
             KOALAP HROFDY 24*1.0
SO SRCPARAM
             KOALAP 0 00000892 1.0 350 0
**
    The Sources are divided into three different groups below:
             STATION CAT3616A CAT3616B CAT3616C CAT3616D
SO SRCGROUP
             STATION GLYBOILA GLYBOILB
SO SRCGROUP
SO SRCGROUP
             OPENPIT
                      PANDAP
                                KOALAP
SO FINISHED
** Details for the REceptor grid are provided below.
RE STARTING
** A total of 498 discrete receptors will be used
RE DISCCART
             -2500. -2500. 457.
                     -2000
             -2500
RE DISCCART
                            456
RE DISCCART
             -2500
                     -1500
                            456.
RE DISCCART
             -2500
                     -1000
                            453
RE DISCCART
             -2500.
                      -750. 453.
                      -500
RE DISCCART
             -2500
                            459.
             -2500.
                      -400
                            468.
RE DISCCART
                      -300. 468
RE DISCCART
             -2500
                      -200. 467.
RE DISCCART
             -2500
RE DISCCART
             -2500
                      -100. 466.
RE DISCCART
             -2500
                      100. 467.
             -2500
                       200. 468.
RE DISCCART
RE DISCCART
             -2500
                       300. 473
             -2500
                       400. 475.
RE DISCCART
RE DISCCART
             -2500.
                       500. 478.
                       750. 485.
RE DISCCART
             -2500.
RE DISCCART
             -2500
                      1000
                            485
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             -2500
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             -2500.
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             -2000. -2500. 455.
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             -2000. -2000
                            458
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             -2000.
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RE	DISCCART			452
RE	DISCCART		-1500	455.
RE	DISCCART	-1500	-1000.	460
RE	DISCCART	-1500.	-750.	454
RE	DISCCART	-1500	-500	454.
RE	DISCCART	-1500	-400	454
RE	DISCCART	-1500	-300.	454
RE	DISCCART	-1500.	-200	454.
\mathbf{RE}	DISCCART	-1500.	-100	454
RE	DISCCART	-1500	100.	454
RE	DISCCART	-1500	200.	454
RE	DISCCART	-1500.	300.	456
RE	DISCCART	-1500	400	463.
RE	DISCCART	-1500	500.	467.
RE	DISCCART	-1500	750	477.
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RE	DISCCART	-1500	1500	487.
RE	DISCCART	-1500	2000	487
RE	DISCCART	-1500	2500.	497
RE	DISCCART	-1000	-2500	448
RE	DISCCART	-1000.	-2000	448
RE	DISCCART			453
		-1000.	-1500	
RE	DISCCART	-1000.	-1000	453
RE	DISCCART	-1000.	-750.	453
RE	DISCCART	-1000.	-500	453
RE	DISCCART	-1000.	-400	453.
RE	DISCCART	-1000	~300	456.
RE	DISCCART	-1000	-200.	455
RE	DISCCART	-1000	-100.	455
RE	DISCCART	-1000.	100.	454.
RE	DISCCART	-1000	200	454.
RE	DISCCART	-1000	300.	454
RE	DISCCART	-1000.	400	454
RE	DISCCART	-1000	500	455
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000	1000	479.
RE	DISCCART	-1000	1500	
RE	DISCCART	-1000.	2000	484
RE	DISCCART	-1000	2500	497
RE	DISCCART	-750	-2500.	448.
RE	DISCCART	-750	-2000.	448.
\mathbf{RE}	DISCCART	-750	-1500.	454.
RE	DISCCART	-750	-1000.	456.
RE	DISCCART	-750.	-750	455
RE	DISCCART	-750.	~500	456
RE	DISCCART	-750.	-400	457.
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RE	DISCCART	-750.	-100	460
RE	DISCCART	-750	100	454
RE	DISCCART	-750	200	454
RE	DISCCART	-750	300	454
RE	DISCCART	-750	400.	455
RE	DISCCART	-750	500	457

RE	DISCCART	-750.	750.	458
RE	DISCCART	-750	1000.	474.
RE	DISCCART	-750	1500	487
RE	DISCCART	-750	2000	487.
RE	DISCCART	-750	2500.	499.
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RE	DISCCART	-500	-1000	466
\mathbf{RE}	DISCCART	-500	-750	457
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RE	DISCCART	-500	100	454
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RE	DISCCART	-500.	300	454
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RE	DISCCART	-500	500	455
RE	DISCCART	-500	750	455
RE	DISCCART	-500	1000	463
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RE	DISCCART	-500	2000	485
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RE	DISCCART	-400.	-2500.	448.
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			-400 -300.	455
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RE	DISCCART	200.	~750	480
RE	DISCCART	200.	~500	478
RE	DISCCART	200	-400	477
RE	DISCCART	200	-300.	477.
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RE	DISCCART	300	-750	483
\mathbf{RE}	DISCCART	300	-500	477
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RE	DISCCART	300	-300	476
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RE	DISCCART	300.	2500	474.
RE	DISCCART	400	-2500	457.
RE	DISCCART	400	-2000.	469
RE	DISCCART	400	-1500	475
\mathbf{RE}	DISCCART	400.	-1000	486
\mathbf{RE}	DISCCART	400.	~750	486
RE	DISCCART	400	-500	477.
RE	DISCCART	400	-400	476.
RE	DISCCART	400	-300	473.
RE	DISCCART	400.	-200.	469
RE	DISCCART	400.	-100	468
RE	DISCCART	400.	100	468.
RE	DISCCART	400.	200.	468.
RE	DISCCART	400.	300	465
RE	DISCCART	400.	400	462
RE	DISCCART	400.	500	455
RE	DISCCART	400. 400.	750	454.
RE	DISCCART	400.	1000.	454
RE	DISCCART	400.	1500.	468
RE	DISCCART	400.	2000	473
RE	DISCCART	400	2500.	473.
RE	DISCCART	500	-2500	462.
RE	DISCCART	500	-2000.	468.
RE	DISCCART	500	-1500.	478.
RE	DISCCART	500	-1000.	487.
RE	DISCCART	500	-750	486
RE	DISCCART	500	-500	478
RE	DISCCART	500.	-400	479
RE	DISCCART	500.	-300.	481.
RE	DISCCART	500.	-200	481
RE	DISCCART	500.	-100	477
RE	DISCCART	500.	100	473
RE	DISCCART	500	200	468
RE	DISCCART	500.	300.	465.
RE	DISCCART	500.	400	457
RE	DISCCART	500	500	454
RE	DISCCART	500	750	454
RE	DISCCART	500	1000	454
RE	DISCCART	500	1500.	471.
RE	DISCCART	500.	2000	472
\mathbf{RE}	DISCCART	500	2500	472
RE	DISCCART	750	-2500	462
\mathbf{RE}	DISCCART	750	-2000	474
RE	DISCCART	750	-1500	483
RE	DISCCART	750	-1000	493.
RE	DISCCART	750	-750	488
RE	DISCCART	750	-500	494
RE	DISCCART	750.	-400	494.
RE	DISCCART	750.	-300	487
RE	DISCCART	750	-200	487
RE	DISCCART	750	-100	484
RE	DISCCART	750	100.	482.

RE	DISCCART	750	200	477
RE	DISCCART	750.	300	474
RE	DISCCART	750	400	472
RE	DISCCART	750	500	465
RE	DISCCART	750	750	458.
RE	DISCCART	750.	1000.	454.
RE	DISCCART	750.	1500	457
RE	DISCCART	750.	2000	464
\mathbf{RE}	DISCCART	750	2500	473
\mathbf{RE}	DISCCART	1000.	-2500	464
RE	DISCCART	1000.	-2000.	480.
RE	DISCCART	1000.	-1500	482
RE	DISCCART	1000.	-1000	501
RE	DISCCART	1000.	~750	490
RE	DISCCART	1000.	-500.	493.
RE	DISCCART	1000.	-400	493
RE	DISCCART	1000.	~300	493
RE	DISCCART	1000.	-200	484
RE	DISCCART	1000.	~100	483
RE	DISCCART	1000.	100.	483.
RE	DISCCART	1000	200	481
RE	DISCCART	1000.	300	477
RE	DISCCART	1000.	400	476
RE	DISCCART	1000.	500	472
			750	467
RE	DISCCART	1000		
RE	DISCCART	1000.	1000.	463
RE	DISCCART	1000	1500	456
RE		1000	2000	466
RE	DISCCART	1000	2500	483
RE		1500	-2500	455
RE		1500	-2000.	
RE		1500.	-1500	481.
RE		1500	-1000	487
RE	DISCCART	1500	-750.	492
RE		1500	-500	487
RE	DISCCART	1500	-400.	487
RE	DISCCART	1500	-300.	486
RE	DISCCART	1500	-200.	485.
RE	DISCCART	1500.	-100	483.
RE	DISCCART	1500.	100.	483.
RE	DISCCART	1500.	200	483.
RE	DISCCART	1500	300.	483.
RE	DISCCART	1500.	400.	483.
RE	DISCCART	1500	500	483
RE	DISCCART	1500	750	483
RE	DISCCART	1500	1000	476
RE	DISCCART	1500	1500	468
RE	DISCCART	1500	2000	464
RE	DISCCART	1500	2500.	475
RE	DISCCART	2000.	-2500	454.
RE	DISCCART	2000.	-2000	468
RE	DISCCART	2000.	-2000 -1500	400 473
	DISCCART	2000	-1000	473 485
RE				
RE	DISCCART	2000	-750	493

	DTOOODD	0000	500	400	
	DISCCART				
RE	DISCCART	2000	200.	487	
RE	DISCCART	2000.	300.	487	
RE	DISCCART	2000.	400.	487.	
RE	DISCCART	2000	500	487.	
RE	DISCCART	2000	750.	492	
RE	DISCCART	2000	1000	487	
	DISCCART				
	DISCCARI				
	DISCCART				
RE	DISCCART	2500.	-100	484	
RE	DISCCART	2500.	100	489	
RE	DISCCART	2500.	200	494	
RE	DISCCART	2500	300	497	
RE	DISCCART	2500	400	497.	
RE	DISCCART	2500	500	497.	
RE	DISCCART	2500.	750	497.	
RE	DISCCART				
RE	DISCCART				
	DISCCART				
RE	DISCCART	0.	-100		475.
RE	DISCCART	0.	1000		75.
RE	DISCCART	-10000			475
RE	DISCCART	-10000			475
RE	DISCCART	15000	. 10		475.
RE	DISCCART	15000		000	475
RE	DISCCART	00001		000.	475
RE	DISCCART			000.	475
		1 5 6 6 6	15		
RE	DISCCART	15000		0.	475
RE	DISCCART	-15000	4 - 4	0.	475
RE	DISCCART	-15000	150		475.
RE	DISCCART	-15000	-15		475
RE	DISCCART	0		500.	475.
RE	DISCCART	5000		500.	475.
RE	DISCCART	10000			475
RE	DISCCART	15000			475
RE	DISCCART	-5000	17	500	475

	DISCCART	-10000		
	DISCCART	-15000.	-17500	
	DISCCART	20000	20000	475.
	DISCCART	20000	-20000	475.
RE	DISCCART	0	-20000	
RE	DISCCART	0	20000	
RE	DISCCART	-20000		475
	DISCCART	-20000		
\mathbf{RE}	DISCCART	2500	-5000.	475
RE	DISCCART	2500	-7500	475
RE	DISCCART	2500	-10000	475
\mathbf{RE}	DISCCART	2500	-12500	475
RE	DISCCART	2500.	-15000.	475
RE	DISCCART	2500.	-17500	475
\mathbf{RE}	DISCCART	2500	-20000	475
RE	DISCCART	-5000.	-2500.	475
RE	DISCCART	10000.	-2500	475
RE	DISCCART	15000.	-2500	475
RE	DISCCART	20000	-2500	475
RE	DISCCART	-15000.	20000	475
RE	DISCCART	-10000.	20000	475.
RE	DISCCART	-5000.	20000	475
RE	DISCCART	5000.	20000.	475
RE	DISCCART	10000.	20000	475
RE	DISCCART	15000.	20000	475
RE	DISCCART	-20000.	15000	475.
RE	DISCCART	-10000.	15000	475
RE	DISCCART	-5000.	15000	475
RE	DISCCART	5000	15000	475
RE	DISCCART	10000	15000	475
RE	DISCCART	20000.	15000	475.
RE	DISCCART	-20000.	10000.	475.
RE	DISCCART	-15000.	10000	475
RE	DISCCART	-5000	10000	475
RE	DISCCART	5000	10000	475
RE	DISCCART	15000.	10000	475.
RE	DISCCART	20000.	10000.	475.
RE	DISCCART	-20000	5000.	475
RE	DISCCART	-15000	5000.	475
RE	DISCCART	-10000.	5000.	475.
RE	DISCCART	-5000	5000.	475
RE	DISCCART	Ο.	5000.	475
RE	DISCCART	5000.	5000	475.
RE	DISCCART	10000.	5000	475.
RE	DISCCART	15000	5000	475
RE	DISCCART	20000	5000	475
RE	DISCCART	-20000.	0	475
RE	DISCCART	-10000.	0	475
RE	DISCCART	-5000	0.	475.
RE	DISCCART	5000	0.	475
RE	DISCCART	10000	0	475
RE	DISCCART	20000.	0	475
RE	DISCCART	-20000.	-5000	475
RE	DISCCART	-15000.	-5000	475.
			. – –	

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RE DISCCART -10000. -5000
                            475
RE DISCCART
             -5000. -5000
                            475
                   -5000
RE DISCCART
                 0
                            475
                   -5000
RE DISCCART
              5000
                            475
RE DISCCART 10000 -5000
                            475.
RE DISCCART 15000 -5000
                            475.
            20000
RE DISCCART
                    -5000. 475
RE DISCCART -20000 -10000. 475
RE DISCCART -15000 -10000. 475
RE DISCCART -5000 -10000. 475
RE DISCCART
             5000. -10000
                            475
RE DISCCART 15000 -10000
                            475.
RE DISCCART 20000 -10000
                            475
RE DISCCART -20000. -15000
                            475
RE DISCCART -10000. -15000
                            475
RE DISCCART -5000 -15000
                           475.
RE DISCCART 5000 -15000. 475
RE DISCCART 10000 -15000
                            475.
RE DISCCART 20000 -15000
                            475
RE DISCCART -15000 -20000
                            475.
RE DISCCART -10000 -20000. 475
RE DISCCART
             -5000 -20000. 475.
             5000 -20000. 475
RE DISCCART
RE DISCCART
           10000 -20000. 475
RE DISCCART
             15000. -20000. 475
RE FINISHED
** The MEteorology pathway begins here
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model There are gaps in the met data
   INPUTFIL ISCST294.DAT
  ANEMHGHT 10 METERS
  SURFDATA 94823 1994 KOALCAMP
  UAIRDATA 94823 1994 NOTAVAIL
  STARTEND 94 01 01
                     94 12 31
  DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
  WDROTATE
           180
ME FINISHED
** The OUtput pathway begins here.
OU STARTING
** RECTABLE will o/p high value summary for each receptor
  RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
  MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn Ambient Air Qual Objective for
** carbon monoxide 1-hour 15 mg/Nm^3 (acceptable)
  MAXIFILE 1 STATION 15000.0
                                MAXICO.FIL 21
```

MAXIFILE 1 OPENPIT 15000.0 MAXICO.FIL 21

- ** PLOTFILE will o/p to a file suitable for import into a graphics
- ** package, in this case Surfer for Windows
 PLOTFILE 1 STATION 1ST K2001CO.FST 22
 PLOTFILE 1 OPENPIT 1ST K2001CO FST 22
- OU FINISHED

```
**Project No 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is TSP.
**
** All met data is from the Koala Camp Weather Station.
** To run the model type:
**
**
     ISCST2EM K2001TSP.INP K2001TSP OUT
**
** The results for this problem are provided in file K2001TSP OUT
**
**NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM
** 16 9 M TO 22.9 M FOR THIS MODEL ITERATION
                                              THE FUEL FOR THE DIESEL
   POWER STATION CONTAINS 0 05 WT % SULPHUR. THE TSP EMISSION RATE HAS
**
** BEEN INCREASED BY 40% TO ACCOUNT FOR AIR QUALITY PERMIT APPLICATION
** PURPOSES THE EVENT PROCESSOR WILL NOT BE USED FOR THIS ITERATION
** THIS MODEL ITERATION IS FOR FY2001 (Year 5)
**
** The COntrol parameters for this model run are as follows:
CO STARTING
   TITLEONE BHP NWT Diamonds Mineral Processing Plant
  MODELOPT DFAULT RURAL CONC
  AVERTIME 24 PERIOD
  POLLUTID TSP
   TERRHGTS ELEV
  ELEVUNIT METERS
  RUNORNOT RUN
   ERRORFIL ERRORTSP OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
SO LOCATION CAT3616A POINT
                               43 0
                                       45 0
                                               466 0
** The diesel power plant will operate at 70% of full load for 24 h/day
** The emission rates have already been adjusted, so use a emission
** factor of 1.0
SO EMISFACT CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                              43 0
                                       51.0
                                              466 0
SO EMISFACT CAT3616B HROFDY 24*1.0
SO LOCATION CAT3616C POINT
                              43 0
                                       57 0 466.0
SO EMISFACT CAT3616C HROFDY 24*1 0
SO LOCATION CAT3616D POINT
                              43.0
                                       63 0
                                              466 0
SO EMISFACT CAT3616D HROFDY 24*1 0
SO LOCATION GLYBOILA POINT
                              12 0 -188 0
                                              466 0
** The diesel fired heating boilers both operate Dec -Mar , one boiler operates
** Sept , Oct , Nov and Apr , no boiler operation May to August;
** adjust emission factors accordingly Each boiler runs at avg 75% of full
* *
   load.
                              3*0.75 8*0.0 1*0 75
SO EMISFACT GLYBOILA MONTH
SO LOCATION GLYBOILB POINT
                              17 0 -188.0
                                               466 0
SO EMISFACT GLYBOILB MONTH
                              4*0 75 4*0 0
                                             4*0 75
SO LOCATION PRIMCRUS POINT -150 0
                                      490 0
                                               475 0
** The primary crusher will operate for 10 hours/day so adjust the
** emission factor accordingly
```

APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE

SO EMISFACT PRIMCRUS HROFDY 7*0 0 10*1.0 7*0.0 SO LOCATION RECLAIM POINT -203.0 196 0 475 0 SO LOCATION PROPLANT POINT -96.0 106 0 466 0 SO LOCATION RECPLANT POINT -104.0 52 0 466 0 ** The Recovery Plant Area Wet Gas Scrubber operates 12 hr/d, adjust the ** emission factor accordingly. SO EMISFACT RECPLANT HROFDY 7*0.0 12*1 0 5*0.0 ** The diesel generators will use 0.05% wt sulfur fuel, the heating boilers ** will use No 2 distillate fuel @ 0 2% wt sulfur ** Point Sources QS HS TSvs DS ** Parameters: _ _ _ _ ----____ ____ - - -SO SRCPARAM CAT3616A 0 185 22 9 712. 20 2 0 9 20.2 SO SRCPARAM CAT3616B 0 185 22 9 712 0 9 SO SRCPARAM CAT3616C 0.185 22.9 712 20 2 0.9 SO SRCPARAM CAT3616D 0 185 22 9 712 20 2 0 9 SO SRCPARAM GLYBOILA 0 029 11 5 433. 7.0 06 SO SRCPARAM GLYBOILB 0 029 11.5 433 70 0.6 SO SRCPARAM PRIMCRUS 0.21 8.8 278 11 0 07 10 0 0 7 SO SRCPARAM RECLAIM 0 19 11 9 278 SO SRCPARAM PROPLANT 0 69 32 0 278 9014 SO SRCPARAM RECPLANT 0 12 35 0 278 4.6 08 ** Fugitive dust sources include the Panda and Koala open pits, ** haul roads from Panda/Koala to the ROM stockpile, and ** the waste dumps ** Firstly, the Panda pit. SO LOCATION PANDAP AREA 1300. 1200 460. SO SRCPARAM PANDAP 0,00000142 1.0 600 ** Secondly, the Koala pit SO LOCATION KOALAP AREA 500 300 460 SO SRCPARAM KOALAP 0.00000165 1.0 350 ** Third, the Panda/Koala waste dump ** A area source of TSP emissions (2000 m on a side) SO LOCATION PKDUMP AREA -1500 800 495. SO SRCPARAM PKDUMP 0.0000257 1 0 2000 0 ** Fourth, the Run of Mine (ROM) Stockpile near the primary crusher ** A area source of TSP emissions (300 m on a side). SO LOCATION ROMSTOCK AREA -300. 500. 450. SO SRCPARAM ROMSTOCK 0.0000257 1.0 300. Building heights and widths are input for calculation of building ** Building widths are input beginning with the 10 degree ** downwash ** flow vector and incrementing by 10 degrees clockwise. CAT3616A 36*13 9 BUILDHGT 0 0 0 0 0.0 0.0 0.0 0 0 0 0 0.0 BUILDWID CAT3616A 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0.0 CAT3616A 4.67 6 00 3 00 3.05 3 19 3 46 3 92 CAT3616A 0.0 CAT3616A 8 77 17 28 30 00 30 46 31 93 34 64 39 16 46 67 CAT3616A 60 00 54 27 51 79 51 00 BUILDHGT CAT3616B 36*13 9 0.0 0 0 0.0 0 0 0 0 0 0 0.0 BUILDWID CAT3616B 0 0 0 0 0 0 0.0 0 0 CAT3616B 0 0 0.0 0.0 0 0

	CAT3616B CAT3616B	0 0 26.31	9.00 30 46		49 030											
	CAT3616B	51.96														
BUILDHGT	CAT3616C	36*13	9													
BUILDWID	CAT3616C	0 0	0.0	0 0	0	0	0	0	Ο.	0	0	0	0	. 0		
	CAT3616C	0.0	0 0	0 0	0	.0	Ο.	. 0	0	0	0	0	0	.0		
	CAT3616C	0.0	15 00	15.23	3 15	96	17	32	19	58	23	33	30	00		
	CAT3616C	31 93	30 46	30 00	0 30	46	31	93	34	64	39	16	46	.67		
	CAT3616C	45 03														
BUILDHGT	CAT3616D	36*13	9													
BUILDWID	CAT3616D	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0		
	CAT3616D	0 0	0.0	0 0	0	0	0	0	0	0	0	0	0	.0		
	CAT3616D	0.0	21 00	21.32	2 22	35	24	25	27.	41	32	.67	34	.64		
	CAT3616D	31 93	30 46	30.00	0 30	46	31.	. 93	34	64	39	.16	43	08		
	CAT3616D	38 11	35.12	33 53	1 33	00										
BUILDHGT	GLYBOILA	36*8.	5													
BUILDWID	GLYBOILA	2 03	2 13	2 31	2	61	3 1	L1 4	1.00) !	58	5	11.!	52		
	GLYBOILA	21 00 2	21 32	22 35	14	00 3	10 8	39	91	.4	8.	80	74	45		
	GLYBOILA	7 11	7.00	7 11	7	45	8 0	8	91	.4 :	10.	89	14 (00		
	GLYBOILA	22.35 2	28 43	28.00	21	00 1	11 5	52	58	85	4.	00	3 3	11		
	GLYBOILA	2 61	2 31	2.13	2	00										
BUILDHGT	GLYBOILB	36*8 9	5													
BUILDWID	GLYBOILB	2 03	2 13	2.31	2	61	3.1	L1	4.0	0	5.	85	11.	52		
	GLYBOILB	16 00 3	LG 25	17.03	14	00 2	10.8	39	91	.4	8	80	7.4	15		
	GLYBOILB	7 11	7.00	7 11	7	45	8 0	8	91	.4 :	10	89	14 (00		
	GLYBOILB		33.51	33 00	21	00 :	11 5	52	58	35	4	00	3.3	11		
	GLYBOILB	2.61	2.31	2 13	2	00										
BUILDHGT	PROPLANT	36*28	5													
BUILDWID	PROPLANT	2 03	2.1		31		61		3.11			00		.85	11.	
	PROPLANT	26.00			67		02		94		33			02		67
	PROPLANT	26 40	26.0		.05		.36		3 52						136	
	PROPLANT						.52	5	5.85	>	4	00	3	.11	2.	.61
	PROPLANT	2 31	2 1	.3 2	03	2	.00									
BUILDHGT	RECPLANT	36*28									~ ~	• •		~~	~ ~	
BUILDWID	RECPLANT	62.96	65.9		59		.11		5 11		23			28		31
	RECPLANT	20 00	20.3		39		.00		2 45		10			23	8	
	RECPLANT	8 12	8.0		12		.51		23		10			45		00 E 0
	RECPLANT							114	1.93	5 I.	24	11	80	94	11	22
** The Sour	RECPLANT ces are di						00		• hc	10	.7 •					
SO SRCGROUP							•	-								
SO SRCGROUP											ROB	T.AN	TR	ECPI	LANT	
SO SRCGROUP																
	OUP MISRO			LINE6												
	OUP OTHRI					LIN	1-PV	ALIN	120	KW.	LIN	1-K	WLI	N20		
	OUP OTHRE											-				
SO FINISHED																
** Details f	or the REG	ceptor g	grid a	re pr	ovid	led I	belo	wc								
RE STARTING																
** A total o	f 498 disa	crete r	ecepto	ors wi	11 b	e u	sed									
RE DISCCART																
RE DISCCART																
RE DISCCART																
RE DISCCART	-2500 -2	1000. 4	53													

-	DIGGOLDE	0 - 0 0		450
RE	DISCCART	-2500.	-750	453.
RE	DISCCART	-2500	-500.	459
RE	DISCCART	-2500	-400	468
RE	DISCCART	-2500	-300	468
RE	DISCCART	-2500.	-200	467.
\mathbf{RE}	DISCCART	-2500.	-100	466.
RE	DISCCART	-2500.	100	467.
RE	DISCCART	-2500.	200.	468
RE	DISCCART	-2500	300.	473
RE	DISCCART	-2500.	400.	475
RE	DISCCART	-2500.	500	478.
RE	DISCCART	-2500	750	485.
RE	DISCCART	-2500	1000.	485.
\mathbf{RE}	DISCCART	-2500.	1500	485
RE	DISCCART	-2500	2000	501.
RE	DISCCART	-2500	2500.	501
\mathbf{RE}	DISCCART	-2000	-2500	455
RE	DISCCART	-2000.	-2000	458
RE	DISCCART	-2000	-1500	457
RE	DISCCART	-2000	-1000	453
RE	DISCCART	-2000	-750.	450
RE	DISCCART	-2000.	-500	448
RE	DISCCART	-2000.	-400	448
RE	DISCCART		-300	448.
RE	DISCCART	-2000	-200.	
RE	DISCCART	-2000	-100.	
RE	DISCCART	-2000.	100.	
RE	DISCCART	-2000.	200.	
RE	DISCCART	-2000.	300.	
RE	DISCCART			465.
RE		-2000	400.	
	DISCCART	-2000	500.	473.
RE	DISCCART	-2000.	750	480
RE	DISCCART	-2000	1000	478
RE	DISCCART	-2000	1500	492.
RE	DISCCART	-2000	2000.	
RE	DISCCART		2500	
RE	DISCCART	-1500	-2500.	
RE	DISCCART	-1500	-2000.	452.
RE	DISCCART	-1500.	-1500.	455.
RE	DISCCART	-1500.	-1000.	460.
RE	DISCCART	-1500.	-750	454.
RE	DISCCART	-1500.	-500	454.
RE	DISCCART	-1500.	-400.	454.
RE	DISCCART	-1500.	-300.	454
RE	DISCCART	-1500	-200	454
RE	DISCCART	-1500	-100	454
RE	DISCCART	-1500	100	454
RE	DISCCART	-1500	200	454
\mathbf{RE}	DISCCART	-1500	300	456
RE	DISCCART	-1500	400.	463.
RE	DISCCART	-1500.	500	467
RE	DISCCART	-1500	750	477
RE	DISCCART	-1500	1000.	477
RE	DISCCART	-1500.	1500.	487.

RE	DISCCART		2000	
RE	DISCCART		2500	
RE	DISCCART		-2500	448
RE	DISCCART			448
RE	DISCCART			453
RE	DISCCART	-1000.	-1000	453
RE	DISCCART	-1000.	-750.	453
\mathbf{RE}	DISCCART	-1000.	-500.	453.
RE	DISCCART	-1000.	-400	453
RE	DISCCART	-1000.	-300.	456.
RE	DISCCART	-1000.	-200	455
\mathbf{RE}	DISCCART	-1000.	-100	455
RE	DISCCART	-1000.	100	454
RE	DISCCART	-1000.	200	454
RE	DISCCART	-1000	300.	454
RE	DISCCART	-1000	400.	454.
RE	DISCCART		500.	455.
RE	DISCCART		750.	467.
RE	DISCCART		1000	479
RE	DISCCART		1500	482
RE	DISCCART		2000	
RE	DISCCART		2500.	
RE	DISCCART			
RE	DISCCART			
RE	DISCCART	•		
RE	DISCCART			
RE	DISCCART		-750.	
RE	DISCCART		-500.	
RE	DISCCART			
RE	DISCCART	-750.	-300	
RE	DISCCART	-750.	-200.	
RE	DISCCART		-100	
RE	DISCCART	-750.	100	
RE			200	
	DISCCART			
RE	DISCCART		300	
RE			400	
RE	DISCCART	-750.	500.	
RE	DISCCART	-750.	750	458
RE	DISCCART	-750	1000	474
RE	DISCCART	-750	1500	487
RE	DISCCART	-750	2000	487
RE	DISCCART	-750.	2500	499.
RE	DISCCART	-500	-2500	448
RE	DISCCART	-500	-2000	448
RE	DISCCART	-500	-1500	457
RE	DISCCART	-500	-1000.	466
RE	DISCCART	-500.	-750.	457.
RE	DISCCART	-500.	-500.	457.
RE	DISCCART	-500	-400	457.
RE	DISCCART	-500	-300	457
RE	DISCCART	-500	-200	456
RE	DISCCART	-500	-100	455
RE	DISCCART	-500	100	454
RE	DISCCART	-500.	200.	454.

RE	DISCCART	-500	300.	454
RE	DISCCART	-500.	400	454
RE	DISCCART	-500.	500	455
\mathbf{RE}	DISCCART	-500	750	455
\mathbf{RE}	DISCCART	-500	1000	463
RE	DISCCART	-500	1500	484
RE	DISCCART	-500.	2000.	485.
RE	DISCCART	-500.	2500	501
RE	DISCCART	-400	-2500	448
\mathbf{RE}	DISCCART	-400	-2000	450
RE	DISCCART	-400	-1500	465
RE	DISCCART	-400	-1000.	457.
RE	DISCCART	-400	-750	457
RE	DISCCART	-400	-500	457
RE	DISCCART	-400	-400	457
RE	DISCCART	-400	-300	455.
RE	DISCCART	-400.	-200	455
RE	DISCCART	-400	-100	
RE	DISCCART	-400	100	
RE	DISCCART	-400	200.	
RE	DISCCART	-400	300	454
RE	DISCCART	-400	400	454
RE	DISCCART	-400	±00 500.	
RE	DISCCART	-400	750.	
RE	DISCCART	-400.	1000	463
RE	DISCCART	-400.	1500.	475
RE	DISCCART	-400.	2000	485
RE	DISCCART	-400.	2500	
RE	DISCCART	-300.	-2500.	
RE	DISCCART	-300.	-2000.	
RE	DISCCART	-300.	-1500	
RE	DISCCART	-300	-1000	458
RE	DISCCART	-300	-750	458
RE	DISCCART	-300	-500	
RE	DISCCART	-300	-400	
RE	DISCCART	-300.	-300.	
\mathbf{RE}	DISCCART	-300	-200	454.
RE	DISCCART	-300	-100	454
\mathbf{RE}	DISCCART	-300	100.	454
\mathbf{RE}	DISCCART	-300.	200.	454.
RE	DISCCART	-300.	300	454.
RE	DISCCART	-300	400	454
RE	DISCCART	-300	500	454
\mathbf{RE}	DISCCART	-300	750	462
RE	DISCCART	-300	1000	466
RE	DISCCART	-300	1500.	468
RE	DISCCART	-300.	2000	487.
RE	DISCCART	-300.	2500.	495.
RE	DISCCART	-200.	-2500	448.
RE	DISCCART	-200	-2000	462
RE	DISCCART	-200	-1500	467
RE	DISCCART	-200.	-1000	461
RE	DISCCART	-200	-750	462.
RE	DISCCART	-200	-500	464
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RE	DISCCART	-200.	-400.	462
RE	DISCCART	-200.	-300	457
RE	DISCCART	-200	-200	456
RE	DISCCART	-200.	-100.	457.
RE	DISCCART	-200	100	457
RE	DISCCART	-200	200	457
RE	DISCCART	-200	300	457
RE	DISCCART	-200	400	456.
RE	DISCCART	-200	500.	454.
\mathbf{RE}	DISCCART	-200.	750	460
RE	DISCCART	-200.	1000.	465.
\mathbf{RE}	DISCCART	-200	1500	470
RE	DISCCART	-200	2000	482
RE	DISCCART	-200	2500	490
RE	DISCCART	-100	-2500.	448.
RE	DISCCART	-100	-2000	458
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100.	-1000.	464.
RE	DISCCART	-100	-750	467
RE	DISCCART	-100	-500	463
RE	DISCCART	-100	-400	463
RE	DISCCART	-100	-300	457
RE	DISCCART	-100	-200	457
RE	DISCCART	-100	-100	457
RE	DISCCART	-100.	100	457.
RE	DISCCART	-100.	200.	458.
RE	DISCCART	-100	300	458.
RE	DISCCART	-100	400.	460.
RE	DISCCART	-100	500.	
RE	DISCCART	-100.	750.	460.
RE	DISCCART	-100	1000	463.
RE	DISCCART	-100	1500	470
RE	DISCCART	-100	2000	482
RE	DISCCART	-100.	2500	483
RE	DISCCART	100.	-2500.	
RE		100.	-2000	458
RE	DISCCART	100.	-1500	468
RE	DISCCART	100	-1000	476
RE	DISCCART	100	-750	482
RE	DISCCART	100	-500,	474
RE	DISCCART	100	-400	475
RE	DISCCART	100	-300	475
RE	DISCCART	100	-200.	466
RE	DISCCART	100	-100	466.
RE	DISCCART	100.	100	466
RE	DISCCART	100.	200.	466
RE			300.	466
	DISCCART	100	400	
RE	DISCCART DISCCART	100 100	400 500	459. 457
RE				
RE	DISCCART	100	750 1000.	456 470
RE	DISCCART	100		
RE	DISCCART	100.	1500	476.
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RE	DISCCART	100	2500.	478

RE	DISCCART	200	-2500.	448.
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RE	DISCCART	200.	-1500.	468
RE	DISCCART	200	-1000.	477
RE	DISCCART	200	-750	480
RE	DISCCART	200	-500	478.
RE	DISCCART	200	-400.	477.
RE	DISCCART	200.	-300	477.
RE	DISCCART	200	-200	470
\mathbf{RE}	DISCCART	200	-100.	470.
RE	DISCCART	200	100	470
RE	DISCCART	200	200	470.
RE	DISCCART	200.	300.	468.
\mathbf{RE}	DISCCART	200	400	462
RE	DISCCART	200	500	457
RE	DISCCART	200.	750	455
RE	DISCCART	200	1000	465
RE	DISCCART	200	1500	474
RE	DISCCART	200	2000	483.
RE	DISCCART	200.	2500.	476.
RE	DISCCART	300	-2500.	452.
RE	DISCCART	300.	-2000.	468.
RE	DISCCART	300.	-1500.	473.
RE	DISCCART	300.	-1000	482.
RE	DISCCART	300.	-750	483
RE	DISCCART	300	-500.	477.
RE	DISCCART	300.	-400.	477.
RE	DISCCART	300	-300	476
RE	DISCCART	300	-200	474
RE	DISCCART	300	-100	475
RE	DISCCART	300.	100.	473.
RE	DISCCART	300.	200	470.
RE	DISCCART	300.	300	467
RE	DISCCART	300.	400	463
RE	DISCCART	300.	500	457
RE	DISCCART	300.	750	454
RE	DISCCART	300.	1000.	462.
RE	DISCCART	300.	1500	476
RE	DISCCART	300	2000	477
RE	DISCCART	300	2500	474
RE	DISCCART	400	-2500,	457
RE	DISCCART	400	-2000	469.
RE	DISCCART	400	-1500	475.
RE	DISCCART	400	-1000	486
RE	DISCCART	400	-750	486
RE	DISCCART	400.	-500	477
RE	DISCCART	400.	-400	476
RE	DISCCART	400	-300	473
RE	DISCCART	400.	-200.	469
RE	DISCCART	400. 400	-100.	468.
RE	DISCCART	400	100.	468 468
RE	DISCCART	400.	200.	468.
	DISCCART	400.	300.	465 465
RE			400	
\mathbf{RE}	DISCCART	400.	400	462

RE	DISCCART	400.	500.	455.
RE	DISCCART	400.	750.	454
RE	DISCCART	400.	1000.	454
RE	DISCCART	400.	1500	468
RE	DISCCART	400	2000	473
RE	DISCCART	400	2500	473.
RE	DISCCART	500	-2500.	462
RE	DISCCART	500	-2000.	468.
RE	DISCCART	500.	-1500	478.
RE	DISCCART	500	-1000	487.
RE	DISCCART	500.	-750	486
RE	DISCCART	500	-500	478
RE	DISCCART	500	-400	479.
RE	DISCCART	500	-300.	481
RE	DISCCART	500.	-200	481
RE	DISCCART	500	-100	477
RE	DISCCART	500	100	473.
RE	DISCCART	500.	200	468
RE	DISCCART	500	300	465
\mathbf{RE}	DISCCART	500	400	457
RE	DISCCART	500	500.	454
RE	DISCCART	500	750	454
RE	DISCCART	500.	1000	454
RE	DISCCART	500	1500	471
RE	DISCCART	500	2000	472
RE	DISCCART	500	2500	472
RE	DISCCART	750	-2500	462
RE	DISCCART	750.	-2000.	474
RE	DISCCART	750.	-1500	483
RE	DISCCART	750	-1000	493
RE	DISCCART	750	-750	488
RE	DISCCART	750	-500	494
RE	DISCCART	750	-400	494
RE	DISCCART	750	-300	487
RE	DISCCART	750	-200.	487.
RE	DISCCART	750	-100.	484.
RE	DISCCART	750.	100.	482.
\mathbf{RE}	DISCCART	750.	200	477.
RE	DISCCART	750	300	474
RE	DISCCART	750	400	472
RE	DISCCART	750.	500.	465.
RE	DISCCART	750	750	458
RE	DISCCART	750	1000	454
RE	DISCCART	750	1500	457
RE	DISCCART	750	2000.	464
RE	DISCCART	750	2500	473
RE	DISCCART	1000	-2500	464
RE	DISCCART	1000	-2000	480.
RE	DISCCART	1000.	-1500	482
	DISCCARI	1000.	-1000	402 501
RE				
RE	DISCCART	1000.	-750	490
RE	DISCCART	1000.	-500.	493
RE	DISCCART	1000	-400	493.
RE	DISCCART	1000	-300	493

	DIGGONDH	1000	000	404
RE	DISCCART	1000	-200.	
RE	DISCCART	1000	-100.	
RE	DISCCART	1000	100	483.
RE	DISCCART	1000	200	481
RE	DISCCART	1000.	300	477
RE	DISCCART	1000	400	476
RE	DISCCART	1000	500	472
RE	DISCCART	1000	750.	467
RE	DISCCART	1000	1000.	463
\mathbf{BE}	DISCCART	1000	1500.	456
RE	DISCCART	1000.	2000	466
RE	DISCCART	1000	2500	483
RE	DISCCART	1500	-2500.	455
\mathbf{RE}	DISCCART	1500	-2000.	473
RE	DISCCART	1500	-1500	481
RE	DISCCART	1500	-1000	487.
\mathbf{RE}	DISCCART	1500	-750.	492
RE	DISCCART	1500.	-500	487
RE	DISCCART	1500	-400	487
RE	DISCCART	1500	-300	486
RE	DISCCART	1500	-200	485.
RE	DISCCART	1500.	-100	483.
RE	DISCCART	1500.	100.	483
RE	DISCCART	1500.	200	483
RE	DISCCART	1500.	300	483
RE	DISCCART	1500.	400	483
RE	DISCCART	1500.	500	483.
RE	DISCCART	1500	750.	483
RE RE	DISCCART	1500	1000	476
	DISCCART	1500	1500	468
RE	DISCCART	1500	2000.	464.
RE	DISCCART	1500.	2500	475
RE	DISCCART	2000	-2500	454
RE	DISCCART	2000	-2000	468
RE	DISCCART	2000	-1500	473
RE	DISCCART	2000	-1000.	
RE	DISCCART	2000	-750.	
RE	DISCCART	2000	-500	493.
RE	DISCCART	2000	-400	489.
RE	DISCCART	2000.	-300	486
RE	DISCCART	2000.	-200	484
RE	DISCCART	2000	-100	486
RE	DISCCART	2000	100	486
RE	DISCCART	2000	200	487
\mathbf{RE}	DISCCART	2000	300	487
\mathbf{RE}	DISCCART	2000.	400.	487.
RE	DISCCART	2000	500.	487.
RE	DISCCART	2000	750	492.
RE	DISCCART	2000.	1000	487
RE	DISCCART	2000	1500	470
RE	DISCCART	2000	2000	464
RE	DISCCART	2000	2500.	465
RE	DISCCART	2500	-2500	454,
RE	DISCCART	2500	-2000.	473
	PTOCOUNT	2000		

	DISCCART		-1500. 468.	
RE	DISCCART			
RE	DISCCART		-750. 484	
RE	DISCCART		-500. 484	
RE	DISCCART		-400. 484.	
RE	DISCCART		-300. 484	
RE	DISCCART		-200 484	
RE	DISCCART		-100. 484	
RE	DISCCART		100. 489.	
RE	DISCCART	2500.	200. 494.	
RE	DISCCART	2500	300. 497	
RE	DISCCART	2500	400. 497	
RE	DISCCART	2500	500. 497	
\mathbf{RE}	DISCCART	2500	750 497	
RE	DISCCART	2500	1000 493	
RE	DISCCART	2500	1500 484	
RE	DISCCART	2500.	2000. 473.	
RE	DISCCART	2500.	2500. 468.	
RE	DISCCART	10000.	10000 475	
RE	DISCCART	10000.	-10000 475	
RE	DISCCART		-10000 475	
RE	DISCCART	0	10000 475	
RE	DISCCART	-10000.	10000 475	
RE	DISCCART	-10000	-10000 475	
RE	DISCCART		15000 475	
RE	DISCCART			
RE	DISCCART		-15000 475	
RE	DISCCART		15000 475	
RE	DISCCART			
RE	DISCCART		0. 475.	
RE	DISCCART			
RE			-17500 475	
RE	DISCCART		-17500 475	
RE	DISCCART	-10000. -15000.		
RE	DISCCART			
RE	DISCCART	20000.		
RE	DISCCART	20000	-20000 475	
RE	DISCCART	0.		
RE	DISCCART	0	20000. 475	
RE	DISCCART	-20000	20000. 475	
RE	DISCCART	-20000	-20000 475.	
RE	DISCCART	2500	-5000 475	
RE	DISCCART	2500.	-7500 475.	
RE	DISCCART	2500	-10000 475.	
RE	DISCCART	2500	-12500 475	
RE	DISCCART	2500.	-15000 475	
RE	DISCCART	2500	-17500. 475	
RE	DISCCART	2500.	-20000. 475.	
\mathbf{RE}	DISCCART	-5000	-2500 475	
RE	DISCCART	10000.	-2500 475	

RE	DISCCART	15000.	-2500	475
RE	DISCCART	20000.	-2500	475
RE	DISCCART	-15000.	20000	475
RE	DISCCART	-10000.	20000	475
\mathbf{RE}	DISCCART	-5000.	20000	475
RE	DISCCART	5000.	20000.	475
RE	DISCCART	10000.	20000.	475
RE	DISCCART	15000.	20000	475
RE	DISCCART	-20000	15000	475.
\mathbf{RE}	DISCCART	-10000	15000	475
RE	DISCCART	-5000	15000	475.
RE	DISCCART	5000.	15000.	475
RE	DISCCART	10000.	15000	475
RE	DISCCART	20000.	15000	475
RE	DISCCART	-20000.	10000	475
RE	DISCCART	-15000.	10000.	475
RE	DISCCART	-5000	10000	475
RE	DISCCART	5000	10000	475
RE	DISCCART	15000	10000	475.
RE	DISCCART	20000	10000.	475
RE	DISCCART	-20000	5000	475
RE	DISCCART	-15000	5000	475
RE	DISCCART	-10000	5000	475
RE	DISCCART	-5000.	5000	475. 475.
RE	DISCCART	0.	5000.	
RE	DISCCART	5000	5000.	475
RE	DISCCART	10000	5000.	475
RE	DISCCART	15000	5000.	475
RE	DISCCART	20000	5000.	475
\mathbf{RE}	DISCCART	-20000	0.	475.
RE	DISCCART	-10000	0.	475
RE	DISCCART	-5000	0	475
RE	DISCCART	5000	0	475
RE	DISCCART	10000.	0	475.
\mathbf{RE}	DISCCART	20000.	Ö	475.
RE	DISCCART	-20000	-5000.	475.
RE	DISCCART	-15000	-5000.	475.
RE	DISCCART	-10000	-5000	475
RE	DISCCART	-5000	-5000	475
RE	DISCCART	0	-5000.	475
RE	DISCCART	5000	-5000.	475
RE	DISCCART	10000	-5000	475
RE	DISCCART	15000.	-5000	475
RE	DISCCART	20000.	-5000	475.
RE	DISCCART	-20000.	-10000	475.
RE	DISCCART	-15000	-10000	475.
RE	DISCCART	-5000	-10000.	475
RE	DISCCART	5000	-10000.	475
RE	DISCCART	15000	-10000	475
RE	DISCCART	20000.	-10000	475
RE	DISCCART	-20000.	-15000	475
RE	DISCCART	-10000.	-15000	475.
		-10000.	-15000.	475.
RE	DISCCART			
RE	DISCCART	5000	-15000	475

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RE DISCCART
            10000 -15000
                             475.
RE DISCCART 20000 -15000
                             475.
RE DISCCART -15000 -20000. 475.
RE DISCCART -10000. -20000
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RE DISCCART -5000 -20000
                            475.
              5000 -20000
RE DISCCART
                            475.
RE DISCCART 10000 -20000
                           475.
RE DISCCART 15000. -20000. 475.
RE FINISHED
** The MEteorology pathway begins here
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model
   INPUTFIL ISCST294 DAT
   ANEMHGHT 10 METERS
   SURFDATA 94823 1994 KOALCAMP
   UAIRDATA 94823 1994 NOTAVAIL
   STARTEND 94 01 01
                     94 12 31
   DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
   WDROTATE 180
ME FINISHED
** The OUtput pathway begins here
OU STARTING
** RECTABLE will o/p high value summary for each receptor
   RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
   MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the acceptable Cdn. Ambient Air Qual Objective
   MAXIFILE 24 STATION 120 0
                                MAXITSP FIL 21
   MAXIFILE 24 OPENPIT 120.0 MAXITSP FIL 21
   MAXIFILE 24 MISROAD 120 0 MAXITSP FIL 21
**
** MAXIFILE 24 OTHRROAD 120 0 MAXITSP.FIL 21
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
   PLOTFILE 24 STATION 1ST K2001TPA FST 22
   PLOTFILE 24 OPENPIT 1ST K2001TPA FST 22
** PLOTFILE 24 MISROAD 1ST K2001TPA FST 22
**
   PLOTFILE 24 OTHRROAD 1ST K2001TPA.FST 22
   PLOTFILE PERIOD STATION
                           K2001TPB FST 26
  PLOTFILE PERIOD OPENPIT K2001TPB.FST 26
**
     PLOTFILE PERIOD MISROAD
                              K2001TPB FST 26
     PLOTFILE PERIOD OTHRROAD K2001TPB FST 26
**
OU FINISHED
```

```
**Project No 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is SO2
**
** All met data is from the Koala Camp Weather Station
** To run the model type:
**
**
      ISCST2EM K2001SO2.INP K2001SO2.OUT
**
** The results for this problem are provided in file K2001SO2.OUT.
**
**NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM
** 16.9 M TO 22 9 M THE FUEL FOR THE DIESEL POWER STATION CONTAINS
                      THE EVENTS PROCESSOR WILL NOT BE USED FOR THIS
** 0 05 WT % SULPHUR
** MODEL ITERATION. THE DIESEL GENERATORS @ 70% OF FULL LOAD WILL BE
** USED TO PLOT 24-HOUR AND 7,416 HOUR SO2 CONCENTRATIONS.
**
** The COntrol parameters for this model run are as follows:
CO STARTING
  TITLEONE BHP NWT Diamonds SO2
  MODELOPT DFAULT RURAL CONC
  AVERTIME
            1 24 PERIOD
  POLLUTID
            SO2
  TERRHGTS
            ELEV
  ELEVUNIT
            METERS
  RUNORNOT
            RUN
  ERRORFIL
            ERRORSO2 OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
SO LOCATION CAT3616A POINT
                                43 0
                                       45 0
                                               466 0
** The diesel power plant will operate at 70% of full load for 24 h/day
**
   The emission rates have already been adjusted, so use an emission
** factor of 1.0.
SO EMISFACT CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                               43.0
                                       51 0
                                               466.0
SO EMISFACT CAT3616B HROFDY 24*1.0
SO LOCATION CAT3616C POINT
                               43 0
                                               466.0
                                       57 0
SO EMISFACT CAT3616C HROFDY 24*1 0
SO LOCATION CAT3616D
                       POINT
                               43 0
                                       63 0
                                               466.0
SO EMISFACT CAT3616D HROFDY 24*1 0
SO LOCATION GLYBOILA POINT
                               12 0 -188 0
                                               466 0
** The diesel fired heating boilers both operate Dec -Mar., one boiler operates
** Sept , Oct., Nov and Apr., no boiler operation May to August;
** adjust emission factors accordingly
                                         Each boiler runs at avg 75% of full
** load
          Assume Cleaver Brooks boilers.
                              3*0.75 8*0.0 1*0 75
SO EMISFACT GLYBOILA MONTH
SO LOCATION GLYBOILB
                       POINT
                               17.0 -188 0
                                                466 0
SO EMISFACT GLYBOILB MONTH
                               4*0 75 4*0 0
                                               4*0 75
** The diesel generators will use 0.05% wt. sulfur fuel, the heating boilers
** will use No 2 distillate fuel @ 0 2% wt sulfur (no emission data avail.
** for low sulfur fuel).
** Point Sources
                        QS
                              HS
                                     \mathbf{TS}
                                           vs
                                               DS
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**	Parameters	3 •								
	SRCPARAM	CAT3616A	0 181	22 9	712	20 2	09			
	SRCPARAM	CAT3616B		22 9	712	20 2	09			
	SRCPARAM	CAT3616C	0 181	22 9	712	20 2	0.9			
	SRCPARAM	CAT3616D	0 181	22.9	712	20 2	09			
	SRCPARAM	GLYBOILA	0.41	11 5	433	70	0.6			
	SRCPARAM	GLYBOILB	0 41	11 5	433.	70	0.6			
**	Building	heights a	nd widt	chs are	e input	t for (calcula	ation of	f buildin	g
**	downwash.	. Buildin	g width	ıs are	input	begin	ning wi	ith the	10 degre	e
**	flow vect	cor and in	crement	ing by	7 10 d	egrees	clockv	wise.		
	BUILDHGT	CAT3616A	36*13	9						
	BUILDWID	CAT3616A	0 0	0 0	0 0	0.0	0 0	0.0	0.0 0	0
		CAT3616A	0 0	0 0	0.0	0 0	00	0 0	0.0 0	0
		CAT3616A		3 00	3 05			3 92		00
		CAT3616A	8.77	17 28	30 00	30 46	31 93	34 64 3	39 16 46	67
		CAT3616A		54 27	51 79	51 00				
	BUILDHGT	CAT3616B	36*13	9						
	BUILDWID	CAT3616B	0 0	00	00	00	0.0	0 0	000	0
		CAT3616B	0 0	0 0	0 0		0 0	00	000	0
		CAT3616B	00	9 00	9.14			1 1 75 3		
		CAT3616B					31 93	34 64 3	39 16 46	67
		CAT3616B		47.89	45 69	45 00				
	BUILDHGT	CAT3616C	36*13							
	BUILDWID	CAT3616C	0.0	0 0	0 0	0 0	0 0	0 0	0.0 0	
		CAT3616C	0 0	0 0	0 0	0 0	0 0	0 0	000.	
		CAT3616C	0 0					19 58 3		
		CAT3616C					31 93	34,64.	39 16 46	67
		CAT3616C		41 50	39.60	39.00				
	BUILDHGT	CAT3616D	36*13							0
	BUILDWID	CAT3616D	0.0	0.0	0 0	0 0	0.0	0.0	0 0 0	-
		CAT3616D	0 0	0 0	0.0	0 0	00	0 0	000.	
		CAT3616D							32 67 34	
		CAT3616D CAT3616D		30 46 35 12			31.93	34,04	39 16 43	08
	BUILDHGT	GLYBOILA			33 DT	33 00				
	BUILDWID	GLYBOILA	2 03	2 13	2.31	2 61	3 11 4	4 0 0 5	.85 11 5	2
	DOIDDWID	GLYBOILA							8 08 7.4	
		GLYBOILA								
		GLYBOILA							4.00 3 1	
		GLYBOILA								
	BUILDHGT				2 20	2 00				
	BUILDWID				2 31	2.61	3 11	4 00	5.85 11 5	2
		GLYBOILB								
		GLYBOILB							0 89 14.0	0
		GLYBOILB							4 00 3 1	.1
		GLYBOILB	2 61	2 31	2 13	2 00				
**	The open	pits are	also s	ources	of SO	2 emis	sions	from mo	bile equi	pment
**	Firstly,	- Panda Pit	•							
so	LOCATION	PANDAP AR	EA 130	0. 120	0 460					
SO	SRCPARAM	PANDAP 0	000004	68 1.0	600 0					
**	-	, Koala Pi								
SO	LOCATION	KOALAP AR	EA 500	. 300	460					

SO SRCPARAM KOALAP 0 00000456 1 0 350 0

```
**
    The Sources are divided into two different groups below:
SO SRCGROUP
             STATION CAT3616A CAT3616B CAT3616C CAT3616D
SO SRCGROUP
             STATION
                     GLYBOILA GLYBOILB
SO SRCGROUP
             OPENPIT
                      PANDAP KOALAP
SO FINISHED
** Details for the REceptor grid are provided below
RE STARTING
** A total of 498 discrete receptors will be used
             -2500. -2500
                           457
RE DISCCART
             -2500. -2000. 456
RE DISCCART
             -2500. -1500. 456.
RE DISCCART
             -2500. -1000
                            453
RE DISCCART
RE DISCCART
             -2500.
                      -750
                            453.
                      -500. 459.
             -2500.
RE DISCCART
RE DISCCART
             -2500
                      -400
                            468
RE DISCCART
             -2500
                      -300
                            468
RE DISCCART
             -2500
                      -200
                            467
RE DISCCART
             -2500
                      -100
                            466.
RE DISCCART
             -2500.
                      100. 467.
RE DISCCART
             -2500.
                       200
                            468
             -2500
                       300
                            473
RE DISCCART
RE DISCCART
             -2500
                       400
                            475
                            478
RE DISCCART
             -2500
                       500
RE DISCCART
             -2500.
                       750. 485.
RE DISCCART
             -2500.
                      1000
                           485.
RE DISCCART
             -2500
                      1500
                            485.
             -2500
                      2000
                            501.
RE DISCCART
RE DISCCART
             -2500
                      2500. 501.
             -2000. -2500. 455.
RE DISCCART
RE DISCCART
             -2000. -2000
                            458.
RE DISCCART
             -2000
                    -1500
                            457
RE DISCCART
             -2000. -1000
                            453
                      -750
RE DISCCART
             -2000.
                            450
             -2000.
RE DISCCART
                      -500. 448.
RE DISCCART
             -2000.
                      -400
                           448.
RE DISCCART
             -2000
                      -300
                            448
RE DISCCART
             -2000
                      -200
                            448
                     -100, 451
             -2000.
RE DISCCART
             -2000
                      100. 466.
RE DISCCART
                       200. 464.
RE DISCCART
             -2000
RE DISCCART
             -2000
                       300. 465
RE DISCCART
             -2000
                       400
                           469
                       500. 473.
RE DISCCART
             -2000.
                       750. 480
RE DISCCART
             -2000.
             -2000.
                      1000. 478
RE DISCCART
RE DISCCART
             -2000
                      1500. 492
RE DISCCART
             -2000
                      2000
                            494.
             -2000
                      2500. 505
RE DISCCART
             -1500. -2500
RE DISCCART
                            448
             -1500. -2000
                            452.
RE DISCCART
RE DISCCART -1500. -1500. 455
```

	DIGGOIDE	1 5 0 0	1000	460
RE	DISCCART	-1500	-1000	460.
RE	DISCCART		-750.	454.
RE	DISCCART	-1500.	-500.	454.
RE	DISCCART	-1500.	-400.	454.
RE	DISCCART	-1500	-300	454
RE	DISCCART	-1500	-200	454.
\mathbf{RE}	DISCCART	-1500	-100.	454.
RE	DISCCART	-1500	100	454.
RE	DISCCART	-1500	200	454
\mathbf{RE}	DISCCART	-1500	300	456
RE	DISCCART	-1500	400	463
RE	DISCCART	-1500	500	467
RE	DISCCART	-1500	750.	477.
RE	DISCCART	-1500	1000.	477.
RE	DISCCART	-1500	1500.	487
RE	DISCCART	-1500	2000.	487
RE	DISCCART	-1500.	2500.	497.
RE	DISCCART	-1000	-2500.	448
RE	DISCCART	-1000	-2000.	448
RE	DISCCART	-1000.	-1500.	453
RE	DISCCART	-1000.	-1000.	453.
	DISCCART		-1000.	453.
RE		-1000.		
RE	DISCCART	-1000.	-500.	453.
RE	DISCCART	-1000	-400	453
RE	DISCCART	-1000	-300	456
RE	DISCCART	-1000	-200	455
\mathbf{RE}	DISCCART	-1000.	-100.	455.
\mathbf{RE}	DISCCART	-1000.	100.	454.
RE	DISCCART	-1000	200	454
RE	DISCCART	-1000	300	454
RE	DISCCART	-1000.	400.	454.
RE	DISCCART	-1000	500	455
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000	1000	479
RE	DISCCART	-1000	1500	482
\mathbf{RE}	DISCCART	-1000.	2000.	484.
RE	DISCCART	-1000	2500.	497.
RE	DISCCART	-750	-2500.	448.
RE	DISCCART	-750.	-2000.	448.
RE	DISCCART	-750.	-1500.	454.
RE	DISCCART	-750.	-1000	456
RE	DISCCART	-750.	-750.	455.
RE	DISCCART	-750	-500	456.
RE	DISCCART	-750	-400	457
RE	DISCCART	-750	-300	460
RE	DISCCART	-750	-200	458
RE	DISCCART	-750	-100	460
RE	DISCCART	-750.	100.	454.
			200	454. 454.
RE	DISCCART	-750.		
RE	DISCCART	-750.	300.	454 455
RE	DISCCART	-750	400	455.
RE	DISCCART	-750	500	457
RE	DISCCART	-750	750	458
RE	DISCCART	-750	1000	474

RE	DISCCART	-750	1500	487
RE	DISCCART	-750	2000.	
RE	DISCCART	-750.	2500	499
RE	DISCCART	-500	-2500	448
RE	DISCCART	-500	-2000	448.
RE	DISCCART	-500.	-1500.	457
\mathbf{RE}	DISCCART	-500.	-1000.	466
RE	DISCCART	-500.	-750	457
RE	DISCCART	-500.	-500	457
RE	DISCCART	-500	-400	457
RE	DISCCART	-500	-300	457.
RE	DISCCART	-500.	-200.	456.
RE	DISCCART	-500	-100.	455
RE	DISCCART	-500.	100	454
RE	DISCCART	-500	200	454
RE	DISCCART	-500.	300.	454
RE	DISCCART	-500.	400.	454
RE	DISCCART	-500.	500	455
RE	DISCCART	-500.	750	455
RE	DISCCART	-500.	1000	463
RE	DISCCART	-500.	1500	
RE	DISCCART	-500.	2000.	
RE	DISCCART	-500.	2500	
RE	DISCCART	-400.	-2500	
RE	DISCCART	-400	-2000	
RE	DISCCART	-400	-1500	
RE	DISCCART	-400.		
RE	DISCCART	-400.	-750	
RE	DISCCART	-400. -400	-500	457
RE	DISCCART	-400	-400	457
RE	DISCCART	-400 -400	-300	455.
RE	DISCCART	-400	-200	
RE	DISCCART	-400 -400	-100	
		-400 -400	100	
RE	DISCCART			
RE	DISCCART	-400	200	
RE		-400	300.	
RE	DISCCART	-400	400	454
RE	DISCCART	-400	500	454.
RE	DISCCART	-400	750.	457.
RE	DISCCART	-400.	1000.	463
RE	DISCCART	-400.	1500.	475.
RE	DISCCART	-400.	2000	485
RE	DISCCART	-400	2500	499
RE	DISCCART	-300	-2500	448
RE	DISCCART	-300.	-2000	457
\mathbf{RE}	DISCCART	-300	-1500	467
RE	DISCCART	-300.	-1000.	458.
RE	DISCCART	-300.	-750.	458,
RE	DISCCART	-300	-500.	462.
RE	DISCCART	-300	-400	459.
RE	DISCCART	-300.	-300	455
RE	DISCCART	-300	-200	454
\mathbf{RE}	DISCCART	-300.	-100.	454.
RE	DISCCART	-300	100.	454.

RE	DISCCART	-300	200.	
RE	DISCCART	-300	300.	
RE	DISCCART	-300	400.	
RE	DISCCART	-300.	500.	454
RE	DISCCART	-300	750.	462
\mathbf{RE}	DISCCART	-300	1000	466
RE	DISCCART	-300	1500.	468.
\mathbf{RE}	DISCCART	-300	2000.	487.
RE	DISCCART	-300,	2500.	495
RE	DISCCART	-200	-2500.	448
\mathbf{RE}	DISCCART	-200	-2000	462
RE	DISCCART	-200.	-1500.	467.
RE	DISCCART	-200	-1000.	461.
RE	DISCCART	-200.	-750	462
\mathbf{RE}	DISCCART	-200	-500	464
\mathbf{RE}	DISCCART	-200	-400	462
RE	DISCCART	-200	-300.	457.
RE	DISCCART	-200.	-200	456.
RE	DISCCART	-200	-100	457
RE	DISCCART	-200	100	457.
RE	DISCCART	-200	200	457.
RE	DISCCART	-200	300.	457.
RE	DISCCART	-200.	400	456
RE	DISCCART	-200.	1 00 500.	454
RE	DISCCART	-200	750.	460
RE			1000	465
	DISCCART	-200		
RE	DISCCART	-200	1500	470
RE	DISCCART	-200	2000.	482.
RE	DISCCART	-200.	2500	490.
RE	DISCCART	-100.	-2500	448
RE	DISCCART	-100.	-2000	458
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100	-1000.	464
RE	DISCCART	-100.	-750.	467.
RE		-100	-500	463
RE	DISCCART	-100	-400	463
RE	DISCCART	-100.	-300.	457
RE	DISCCART	-100	-200	457
RE	DISCCART	-100	-100	457
RE	DISCCART	-100	100	457
RE	DISCCART	-100	200	458
RE	DISCCART	-100	300	458
\mathbf{RE}	DISCCART	-100.	400.	460.
RE	DISCCART	-100.	500.	454.
\mathbf{RE}	DISCCART	-100.	750	460.
RE	DISCCART	-100.	1000	463
RE	DISCCART	-100	1500	470
RE	DISCCART	-100	2000.	482.
RE	DISCCART	-100	2500	483
RE	DISCCART	100	-2500	448.
RE	DISCCART	100	-2000	458
RE	DISCCART	100	-1500.	468
RE	DISCCART	100	-1000.	476.
RE	DISCCART	100.	-750	482
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RE	DISCCART	100.	-500	474
RE	DISCCART	100.	-400.	475
RE	DISCCART	100.	-300.	475
RE	DISCCART	100	-200.	466.
RE	DISCCART	100	-100	466.
RE	DISCCART	100	100	466.
RE	DISCCART	100.	200	466.
RE	DISCCART	100	300	466.
RE	DISCCART	100	400	459.
RE	DISCCART	100	500	457.
RE	DISCCART	100	750	456
RE	DISCCART	100	1000.	470
RE	DISCCART	100	1500	476
RE	DISCCART	100	2000	486
RE	DISCCART	100.	2500	478.
RE	DISCCART	200.	-2500	448
RE	DISCCART	200	-2000	458
RE	DISCCART	200	-1500.	468.
RE	DISCCART	200	-1000.	477
RE	DISCCART	200.	-750.	480
RE	DISCCART	200.	-500	478
RE	DISCCART	200	-400	477
RE	DISCCART	200	-300.	477
RE	DISCCART	200	-200	470
RE	DISCCART		-100.	
		200		470
RE	DISCCART	200	100.	470
RE	DISCCART	200.	200.	470
RE	DISCCART	200	300	468
RE	DISCCART	200	400.	462.
RE	DISCCART	200	500.	457.
RE	DISCCART	200	750	455.
RE	DISCCART	200	1000	465
RE	DISCCART	200	1500	474.
RE	DISCCART	200	2000	483.
\mathbf{RE}	DISCCART	200	2500	476.
RE	DISCCART	300	-2500.	452.
RE	DISCCART	300	-2000.	468
RE	DISCCART	300	-1500	473
RE	DISCCART	300	-1000	482
RE	DISCCART	300	-750.	483.
RE	DISCCART	300	-500.	477
RE	DISCCART	300	-400	477
RE	DISCCART	300	-300	476
RE	DISCCART	300.	-200.	474.
RE	DISCCART	300.	-100.	475.
RE	DISCCART	300.	100.	473
RE	DISCCART	300.	200	470
RE	DISCCART	300.	300	467
RE	DISCCART	300	400	463
RE	DISCCART	300	500	457
RE	DISCCART	300	750	454
RE	DISCCARI	300	1000.	462.
RE	DISCCARI	300	1500.	402.
RE	DISCCART	300.	2000	477.

RE	DISCCART	300	2500.	474
RE	DISCCART	400	-2500.	457
RE	DISCCART	400	-2000	469
RE	DISCCART	400	-1500	475
RE	DISCCART	400.	-1000	486.
RE	DISCCART	400.	-750.	486
RE	DISCCART	400	-500.	477
RE	DISCCART	400	-400.	476
RE	DISCCART	400	-300	473
RE	DISCCART	400.	-200	469.
RE	DISCCART	400	-100	468.
RE	DISCCART	400	100.	468
RE	DISCCART	400	200	468
RE	DISCCART	400	300	465
RE	DISCCART	400	400	462
RE	DISCCART	400	500	455.
RE	DISCCART	400	750.	454
RE	DISCCART	400	1000	454
RE	DISCCART	400.	1500	468
RE	DISCCART	400.	2000	473.
RE	DISCCART	400. 400		473
			2500.	
RE	DISCCART	500	-2500.	462
RE	DISCCART	500.	-2000.	468
RE	DISCCART	500	-1500	478
RE	DISCCART	500	-1000	487
RE	DISCCART	500	-750	486.
RE	DISCCART	500	-500	478
RE	DISCCART	500	-400.	479
RE	DISCCART	500.	-300	481
RE	DISCCART	500	-200	481
RE	DISCCART	500	-100.	477
RE	DISCCART	500	100.	473
RE	DISCCART	500.	200	468
RE	DISCCART	500	300	465
RE	DISCCART	500	400	457
\mathbf{RE}	DISCCART	500	500.	454
\mathbf{RE}	DISCCART	500	750	454
RE	DISCCART	500.	1000	454
RE	DISCCART	500.	1500	471
RE	DISCCART	500	2000	472
RE	DISCCART	500	2500	472.
RE	DISCCART	750.	-2500	462
RE	DISCCART	750	-2000	474
RE	DISCCART	750	-1500	483
RE	DISCCART	750	-1000.	493.
RE	DISCCART	750	-750.	488.
RE	DISCCART	750,	-500	494.
RE	DISCCART	750.	-400	494
RE	DISCCART	750.	-300	487
RE	DISCCART	750	-200	487
RE	DISCCART	750	-100	484
RE	DISCCART	750	100	482
RE	DISCCART	750	200.	477.
RE	DISCCART	750	300.	474.
		,		

RE	DISCCART	750	400.	472.
RE	DISCCART	750	400. 500	465.
RE	DISCCART	750.	750	405. 458
RE	DISCCART	750.	1000	454.
RE	DISCCARI	750	1500.	454.
	DISCCART			
RE		750.	2000	464
RE	DISCCART	750.	2500	473
RE	DISCCART	1000.	-2500	464
RE	DISCCART	1000.	-2000	480.
RE	DISCCART	1000.	-1500	482.
RE	DISCCART	1000.	-1000.	501
RE	DISCCART	1000.	-750.	490
RE	DISCCART	1000.	-500	493
RE	DISCCART	1000	-400.	493.
RE	DISCCART	1000	-300.	493
RE	DISCCART	1000	-200.	484
RE	DISCCART	1000	-100.	483.
RE	DISCCART	1000	100	483.
RE	DISCCART	1000	200.	481.
\mathbf{RE}	DISCCART	1000	300	477.
\mathbf{RE}	DISCCART	1000	400	476
RE	DISCCART	1000.	500	472
RE	DISCCART	1000	750	467
RE	DISCCART	1000	1000	463
RE	DISCCART	1000	1500.	456.
\mathbf{RE}	DISCCART	1000	2000	466
RE	DISCCART	1000.	2500	483
RE	DISCCART	1500	-2500	455
RE	DISCCART	1500	-2000	473
RE	DISCCART	1500	-1500	481,
RE	DISCCART	1500	-1000.	487.
RE	DISCCART	1500.	-750	492
RE	DISCCART	1500	-500	487
RE	DISCCART	1500	-400	487
RE	DISCCART	1500	-300.	486.
RE	DISCCART	1500.	-200	485
RE	DISCCART	1500	-100	483
RE	DISCCART	1500	100	483
RE	DISCCART	1500	200	483
RE	DISCCART	1500	300.	483.
RE	DISCCART	1500.	400.	483.
RE	DISCCART	1500	500	483
RE	DISCCART	1500	750.	483
RE	DISCCART	1500	1000.	476.
RE	DISCCART	1500	1500.	468.
RE	DISCCART	1500.	2000.	464.
RE	DISCCART	1500.	2500.	475.
RE	DISCCART	2000.	-2500	475. 454
RE	DISCCART	2000.	-2000	468
RE	DISCCART	2000	-1500	473 495
RE	DISCCART	2000	-1000	485
RE	DISCCART	2000	-750	493
RE	DISCCART	2000	-500.	493.
RE	DISCCART	2000.	-400	489

RE	DISCCART	2000	-300	486.	
	DISCCART	2000	-200	484.	
RE	DISCCART	2000	-100.		
RE	DISCCART	2000	100.		
RE	DISCCART		200		
RE	DISCCART	2000.	300	487.	
RE	DISCCART	2000	400.	487	
	DISCCART		500.	487	
RE	DISCCART	2000.	750	492	
	DISCCART	2000	1000	487.	
RE	DISCCART	2000	1500	470.	
	DISCCART		2000	464	
	DISCCART		2500.	465	
	DISCCART		-2500		
RE	DISCCART	2500	-2000	473	
	DISCCART				
	DISCCART				
	DISCCART		-750		
	DISCCART				
	DISCCART		-400		
	DISCCART		-300.		
RE	DISCCART	2500	-200		
	DISCCART		-100.		
RE	DISCCART		100.		
RE	DISCCART		200.		
	DISCCART				
RE	DISCCARI		300.		
RE	DISCCART				
	DISCCART				
RE	DISCCART				
RE	DISCCART				
RE	DISCCART		2000		
RE	DISCCART		2500		
RE	DISCCART		. 100		
RE	DISCCART		-10		475
RE	DISCCART	0	-10		
RE	DISCCART	C		00	475.
RE	DISCCART	-1000	0. 10	000	475.
RE	DISCCART	-1000	01	0000	475
RE	DISCCART	15000	150	00	475.
RE	DISCCART	15000	-15	000.	475.
RE	DISCCART	C	-15	000	475.
\mathbf{RE}	DISCCART	C	15	.000	475
RE	DISCCART	15000)	Ο.	475
RE	DISCCART	-1500	0	0	475
RE	DISCCART	-1500	0 15	000	475
RE	DISCCART	-1500	0 -1	5000.	475
RE	DISCCART	C) -17	500	475.
\mathbf{RE}	DISCCART	5000		500	475.
RE	DISCCART	10000			475.
RE	DISCCART	15000			475
RE	DISCCART	-5000			475.
RE	DISCCART	-10000			475
RE	DISCCART	-15000			475.
		10000	/		1/31

	DIAGOND			
	DISCCART		20000.	
	DISCCART	20000		
	DISCCART	0	-20000	
	DISCCART	0.		
	DISCCART	-20000	20000	475
RE	DISCCART	-20000	-20000	
RE	DISCCART	2500	-5000.	475
\mathbf{RE}	DISCCART			475
\mathbf{RE}	DISCCART	2500.	-10000	475
RE	DISCCART	2500.	-12500.	475
RE	DISCCART	2500	-15000	475
RE	DISCCART	2500	-17500	475.
RE	DISCCART	2500	-20000.	475
RE	DISCCART	-5000.	-2500	475
RE	DISCCART		-2500.	475
RE	DISCCART		-2500.	
RE	DISCCART			
RE	DISCCART			
RE	DISCCART		20000.	
RE	DISCCART	-5000	20000.	
RE	DISCCART		20000.	
RE	DISCCART		20000.	
RE	DISCCART			475
RE	DISCCART		15000	
RE	DISCCART		15000	
RE	DISCCART	-5000	15000.	
RE	DISCCART	5000	15000.	
RE	DISCCART		15000.	
RE	DISCCART		15000.	
RE	DISCCART		10000.	
RE	DISCCART		10000.	
RE	DISCCART	-5000.	10000.	
RE	DISCCART		10000.	
RE	DISCCART		10000	
RE	DISCCART		10000	
RE	DISCCART		5000.	
RE	DISCCART		5000.	
RE	DISCCART	-10000.	5000	475
RE	DISCCART	-5000	5000	475.
RE	DISCCART	0	5000	475.
RE	DISCCART	5000.	5000.	475
RE	DISCCART	10000	5000	475
RE	DISCCART	15000	5000.	475
RE	DISCCART	20000	5000.	475
RE	DISCCART	-20000	0.	475
RE	DISCCART	-10000.	0.	475.
RE	DISCCART	-5000	Ο.	475
RE	DISCCART	5000	0	475
RE	DISCCART	10000	0	475
RE	DISCCART	20000.	0	475.
RE	DISCCART	-20000	-5000	475
RE	DISCCART	-15000	-5000	475
RE	DISCCART	-10000	-5000.	475.
RE	DISCCART	-5000	-5000.	475

```
RE DISCCART
                     -5000.
                             475.
                0
            5000
RE DISCCART
                     -5000.
                             475
RE DISCCART
             10000. -5000
                             475
RE DISCCART 15000
                     -5000.
                             475
RE DISCCART
             20000
                     -5000.
                            475
            -20000
RE DISCCART
                    -10000.
                            475,
RE DISCCART -15000 -10000.
                            475
RE DISCCART -5000. -10000.
                           475
            5000. -10000
RE DISCCART
                             475
RE DISCCART
             15000 -10000.
                             475
RE DISCCART 20000 -10000
                             475
RE DISCCART -20000 -15000
                             475.
RE DISCCART -10000. -15000. 475
             -5000. -15000
RE DISCCART
                            475
RE DISCCART
             5000 -15000
                            475
RE DISCCART 10000. -15000
                             475
            20000. -15000
RE DISCCART
                             475.
RE DISCCART -15000. -20000.
                             475
RE DISCCART -10000 -20000
                             475
RE DISCCART
            -5000 -20000
                             475
RE DISCCART
              5000 -20000
                             475
RE DISCCART
             10000 -20000.
                           475.
RE DISCCART
             15000. -20000.
                             475
RE FINISHED
   The MEteorology pathway begins here
**
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model There are gaps in the met data.
   INPUTFIL ISCST294.DAT
   ANEMHGHT 10 METERS
   SURFDATA 94823 1994 KOALCAMP
   UAIRDATA 94823 1994 NOTAVAIL
   STARTEND 94 01 01
                     94 12 31
   DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
   WDROTATE
            180
ME FINISHED
** The OUtput pathway begins here
OU STARTING
** RECTABLE will o/p high value summary for each receptor
   RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
   MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn. Ambient Air Qual Objective for
** sulfur dioxide 24-hour is 300 ug/Nm^3 (acceptable).
   MAXIFILE 24 STATION 300 0
                                MAX24SO2 FIL 21
   MAXIFILE 24 OPENPIT 300.0 MAX24SO2 FIL 21
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
```

PLOTFILE	1 STATION 1ST K2001SO1 FST 24
PLOTFILE	1 OPENPIT 1ST K2001SO1 FST 24
PLOTFILE	24 STATION 1ST K2001SO2.FST 23
PLOTFILE	24 OPENPIT 1ST K2001SO2.FST 23
PLOTFILE	PERIOD STATION K2001SO3 FST 26
PLOTFILE	PERIOD OPENPIT K2001SO3 FST 26

OU FINISHED

```
**Project No 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is SO2
**
** All met data is from the Koala Camp Weather Station.
** To run the model type:
**
**
      ISCST2EM K2001SO2 INP K2001SO2.OUT
**
** The results for this problem are provided in file K2001SO2.OUT
**
**NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM
** 16.9 M TO 22 9 M. THE FUEL FOR THE DIESEL POWER STATION CONTAINS
** 0.05 WT % SULPHUR. THE EVENTS PROCESSOR WILL NOT BE USED FOR THIS
                    THE DIESEL GENERATORS @ 70% OF FULL LOAD WILL BE
** MODEL ITERATION
** USED TO PLOT 24-HOUR AND 7,416 HOUR SO2 CONCENTRATIONS.
**
** The COntrol parameters for this model run are as follows:
CO STARTING
   TITLEONE BHP NWT Diamonds SO2
   MODELOPT DFAULT RURAL CONC
            1 24 PERIOD
   AVERTIME
   POLLUTID
            SO2
   TERRHGTS
            ELEV
   ELEVUNIT
            METERS
  RUNORNOT
            RUN
   ERRORFIL
            ERRORSO2 OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
SO LOCATION CAT3616A POINT
                                43 0
                                        45 0
                                               466 0
   The diesel power plant will operate at 70% of full load for 24 h/day
**
** The emission rates have already been adjusted, so use an emission
** factor of 1 0
SO EMISFACT CAT3616A HROFDY 24*1 0
SO LOCATION CAT3616B POINT
                               43.0
                                       51 0
                                               466 0
SO EMISFACT CAT3616B HROFDY 24*1 0
SO LOCATION CAT3616C POINT
                               43.0
                                       57 0
                                               466 0
SO EMISFACT
             CAT3616C
                      HROFDY
                              24*1 0
SO LOCATION CAT3616D POINT
                                43 0
                                               466 0
                                        63.0
            CAT3616D HROFDY 24*1.0
SO EMISFACT
                                     -188 0
SO LOCATION GLYBOILA POINT
                               12.0
                                               466 0
** The diesel fired heating boilers both operate Dec -Mar., one boiler operates
** Sept , Oct , Nov. and Apr., no boiler operation May to August;
** adjust emission factors accordingly
                                         Each boiler runs at avg 75% of full
** load. Assume Cleaver Brooks boilers
SO EMISFACT GLYBOILA MONTH
                               3*0 75 8*0 0
                                             1*0 75
SO LOCATION GLYBOILB
                      POINT
                                17.0 -188.0
                                                466 0
SO EMISFACT GLYBOILB MONTH
                               4*0 75 4*0 0
                                              4*0 75
** The diesel generators will use 0.05% wt. sulfur fuel, the heating boilers
** will use No 2 distillate fuel @ 0 2% wt sulfur (no emission data avail.
** for low sulfur fuel).
** Point Sources
                        OS
                               HS
                                     TS
                                           vs
                                               DS
```

**	Parameters	.								
	SRCPARAM	CAT3616A	0 181	22 9	712	20 2	09			
	SRCPARAM	CAT3616B					09			
	SRCPARAM	CAT3616C				20 2	09			
	SRCPARAM	CAT3616D								
	SRCPARAM	GLYBOILA		11 5			0.6			
	SRCPARAM	GLYBOILB	0 41	11 5			0.6			
**		heights a						ation o	f buil	lding
**	downwash	-			-					_
**		or and in							10 00	-gree
	BUILDHGT	CAT3616A	36*13		y 10 a	cgrccs	CIOCK	WIDC.		
	BUILDWID	CAT3616A	0.0	0 0	0 0	0.0	0.0	0 0	0 0	0 0
		CAT3616A	0 0	0 0		0 0	0 0	0 0	0 0	0 0
		CAT3616A		3.00		3 19		-	4 67	6 00
		CAT3616A						34,64		
		CAT3616A		54 27			51 55	51,01 .		10101
	BUILDHGT	CAT3616B	36*13		51.15	91 OV				
	BUILDWID	CAT3616B	0 0	0.0	0 0	0 0	0 0	0 0	0 0	0 0
	DOILDWID	CAT3616B	0.0	0.0	00		0 0	0 0	0 0	0 0
		CAT3616B	0.0	9 00				11 75 :		
		CAT3616B						34 64 3		
		CAT3616B		47 89			51 3 5	JI UI .	,,, <u>,</u> ,	10 0,
	BUILDHGT	CAT3616C	36*13		40 UJ	1 0 00				
	BUILDWID	CAT3616C	0 0	0.0	0 0	0 0	0 0	0 0	0 0	0 0
	DOTIDUTD	CAT3616C	0.0	0.0	00	00	0 0	0 0	0 0	0 0
		CAT3616C	0.0					19.58 2		
		CAT3616C						34.64		
		CAT3616C		41 50			JI 73	J4.04 .	,,, <u>,</u> ,	40 07
	BUILDHGT	CAT3616D	36*13		39 00	39 00				
	BUILDNGI	CAT3616D	0.0	.9	0 0	0 0	0 0	0 0	0 0	0 0
	POIDMID	CAT3616D	0.0	00	00	00	00	0 0	0 0	0 0
		CAT3616D	0 0					27 41 3		
		CAT3616D						34 64		
		CA13616D CAT3616D		35.12			31 33	34 04	59 IO	43 08
	BUILDHGT	GLYBOILA			22 DT	33 00				
	BUILDHGI	GLYBOILA	2 03	2 13	2 31	2.61	3.11	4 00 5	85 3	11 52
	POIDPMID	GLYBOILA							8 0 8 J	7 45
		GLYBOILA								
		GLYBOILA							4.00	
		GLYBOILA				21 00 .	11 J2	5.05	1.00	5 11
	BUILDHGT				2 73	2 00				
	BUILDWID				2.31	2 61	3 11	4 00	5 85 1	11 52
	BOIDDWID	GLYBOILB								
		GLYBOILB					8.08			
		GLYBOILB							4.00	
		GLYBOILB					11 92	5 05	1.00	J TT
		аптооттр	2.01	4 JI	2 IJ	2 00				
**	The oner	pits are	aleo e	ourcea	of co	2 emia	giong	from mo	bile 4	equipment
**		Panda Pit		CULCES	01 50	2 CUIN	OTOUD		~	edarbucue
	LOCATION			0 120	0 460					
	SRCPARAM									
50	DIGT RICHT	LIMPAR U.	00004		000.0					
**	Secondly	, Koala Pi	t							
	LOCATION			300	460					
20										

SO SRCPARAM KOALAP 0 00000456 1.0 350.0

```
**
    The Sources are divided into two different groups below:
SO SRCGROUP
             STATION CAT3616A CAT3616B CAT3616C CAT3616D
             STATION GLYBOILA GLYBOILB
SO SRCGROUP
             OPENPIT
                     PANDAP KOALAP
SO SRCGROUP
SO FINISHED
** Details for the REceptor grid are provided below
RE STARTING
** A total of 498 discrete receptors will be used
            -2500. -2500
                           457
RE DISCCART
RE DISCCART
             -2500. -2000
                           456
RE DISCCART
             -2500. -1500
                           456
RE DISCCART
             -2500. -1000. 453
                     -750
RE DISCCART
            -2500.
                           453
            -2500.
                     -500
                           459
RE DISCCART
RE DISCCART
             -2500.
                     -400
                           468
                     -300. 468.
RE DISCCART
            -2500.
            -2500.
                     -200
                           467
RE DISCCART
                     -100
                           466
RE DISCCART
            -2500.
             -2500
                      100
                           467
RE DISCCART
                      200
RE DISCCART
            -2500
                           468.
                      300
                           473.
RE DISCCART
            -2500
RE DISCCART
             -2500.
                      400. 475.
                      500
RE DISCCART
             -2500
                           478
                      750
            -2500
                           485
RE DISCCART
RE DISCCART
            -2500
                     1000
                           485
                     1500
RE DISCCART
             -2500.
                           485
             -2500
RE DISCCART
                     2000
                           501
RE DISCCART
            -2500
                     2500
                           501
            -2000
                    -2500
RE DISCCART
                           455
RE DISCCART
             -2000
                    -2000
                           458
            -2000. -1500. 457.
RE DISCCART
RE DISCCART
            -2000
                    -1000
                           453
             -2000
                     -750
                           450
RE DISCCART
RE DISCCART
             -2000
                     -500
                           448
                     -400
            -2000
                           448.
RE DISCCART
            -2000
                     -300, 448.
RE DISCCART
                     -200. 448.
RE DISCCART
             -2000.
RE DISCCART
             -2000.
                     -100. 451.
                      100
                           466.
RE DISCCART
            -2000.
                      200
RE DISCCART
            -2000.
                           464
                      300. 465
             -2000.
RE DISCCART
RE DISCCART
             -2000
                      400
                            469
RE DISCCART
             -2000.
                       500. 473.
RE DISCCART
             -2000
                      750
                           480.
             -2000
                      1000
                           478
RE DISCCART
             -2000.
                     1500. 492
RE DISCCART
RE DISCCART
             -2000.
                     2000. 494.
RE DISCCART
             -2000.
                     2500. 505.
RE DISCCART
             -1500. -2500. 448.
             -1500. -2000
                           452.
RE DISCCART
RE DISCCART
            -1500 -1500
                           455
```

	DIGGODO	1 - 0 0	1000	
RE	DISCCART	-1500	-1000.	460.
RE	DISCCART	-1500	-750.	454.
RE	DISCCART	-1500	-500	454
RE	DISCCART	-1500.	-400	454
RE	DISCCART	-1500	-300	454.
RE	DISCCART	-1500	-200	454.
RE	DISCCART	-1500	-100.	454
\mathbf{RE}	DISCCART	-1500.	100	454
RE	DISCCART	-1500.	200	454
RE	DISCCART	-1500.	300	456
RE	DISCCART	-1500.	400	463.
RE	DISCCART	-1500.	500	467.
RE	DISCCART	-1500.	750.	477
RE	DISCCART	-1500.	1000	477
RE	DISCCART	-1500	1500	487
RE	DISCCART	-1500	2000.	487.
RE	DISCCART	-1500	2500.	497
RE	DISCCART	-1000.	-2500	448
RE	DISCCART	-1000	-2000.	448.
RE	DISCCART	-1000	-1500.	453
RE	DISCCART	-1000	-1000.	453.
RE	DISCCART	-1000.	-750	453.
RE	DISCCART	-1000.	-500	453
RE	DISCCART	-1000	-400	453
RE	DISCCART	-1000	-300	456
RE	DISCCART	-1000	-200	455
RE	DISCCART	-1000	-100,	455.
RE	DISCCART	-1000	100.	454
RE		-1000.	200	454
RE	DISCCART	-1000.	300	454
	DISCCART			
RE	DISCCART	-1000	400.	454.
RE	DISCCART	-1000.	500	455
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000	1000	479
RE	DISCCART	-1000	1500	
RE	DISCCART	-1000	2000.	
RE	DISCCART	-1000.	2500.	
RE	DISCCART	-750.	-2500.	448.
RE	DISCCART	-750.		448.
RE	DISCCART	-750.		454.
RE	DISCCART	-750.	-1000	456.
RE	DISCCART	-750.	-750.	455.
RE	DISCCART	-750.	-500	456
RE	DISCCART	-750.	-400	457
RE	DISCCART	-750.	-300	460
RE	DISCCART	-750.	-200	458.
RE	DISCCART	-750.	-100.	460
RE	DISCCART	-750.	100	454
RE	DISCCART	-750.	200	454
RE	DISCCART	-750	300	454
RE	DISCCART	-750	400	455
RE	DISCCART	-750	500	457
RE	DISCCART	-750	750.	458
RE	DISCCART	-750	1000.	474.
	~~~~~	,		

RE	DISCCART	-750	1500	487.
RE	DISCCART	-750	2000	487.
RE	DISCCART	-750.	2500.	499
RE	DISCCART	-500.	-2500	448
RE	DISCCART	-500.	-2000	448
RE	DISCCART	-500.	-1500.	457.
RE	DISCCART	-500.	-1000.	466.
RE	DISCCART	-500.	-750	457
$\mathbf{RE}$	DISCCART	-500.	-500	457
RE	DISCCART	-500.	-400	457
RE	DISCCART	-500.	-300	457
$\mathbf{RE}$	DISCCART	-500.	-200.	456.
RE	DISCCART	-500.	-100	455
RE	DISCCART	-500.	100	454
RE	DISCCART	-500.	200	454
RE	DISCCART	-500.	300	454
RE	DISCCART	-500.	400	454
RE	DISCCART	-500.	500	455
RE	DISCCART	-500	750	455
RE	DISCCART	-500	1000	463
RE	DISCCART	-500	1500	484
RE	DISCCART	-500.	2000	485
RE	DISCCART	-500	2500	501
RE	DISCCART	-400	-2500	448
RE	DISCCART	-400	-2000	450
RE	DISCCART	-400	-1500	465
RE	DISCCART	-400	-1000	
RE	DISCCART	-400	-750.	
RE	DISCCART	-400.	-500.	
RE	DISCCART	-400. -400	-400.	
RE	DISCCART	-400 -400	-300.	
RE	DISCCART	-400 -400	-200.	
			-100.	
RE		-400.	-100. 100	
RE		-400.		
RE		-400.	200	
RE		-400.	300	
RE		-400.	400.	
RE	DISCCART	-400.	500.	454
RE	DISCCART	-400	750	457
RE	DISCCART	-400	1000	463
RE	DISCCART	-400.	1500	475
RE	DISCCART	-400	2000.	485
RE	DISCCART	-400	2500	499
$\mathbf{RE}$	DISCCART	-300	-2500.	448.
RE	DISCCART	-300	-2000.	457
RE	DISCCART	-300	-1500.	467.
RE	DISCCART	-300.	-1000.	458
$\mathbf{RE}$	DISCCART	-300.	-750	458
RE	DISCCART	-300.	-500.	462.
RE	DISCCART	-300.	-400.	459.
RE	DISCCART	-300	-300	455
RE	DISCCART	-300	-200	454
RE	DISCCART	-300	-100.	454
RE	DISCCART	-300.	100	454.

RE	DISCCART	-300	200	454.
RE	DISCCART	-300	300.	454
RE	DISCCART	-300	400.	454
RE	DISCCART	-300	500.	454
RE	DISCCART	-300.	750.	462
RE	DISCCART	-300	1000	466.
RE	DISCCART	-300	1500	468.
RE	DISCCART	-300	2000	487
RE	DISCCART	-300	2500.	495
$\mathbf{RE}$	DISCCART	-200	-2500	448
RE	DISCCART	-200.	-2000	462
RE	DISCCART	-200	-1500	467
RE	DISCCART	-200.	-1000	461
RE	DISCCART	-200	-750.	462
RE	DISCCART	-200.	-500	464
RE	DISCCART	-200.	-400	462
RE	DISCCART	-200.	~300	457.
RE	DISCCART	-200	-200.	456
RE	DISCCART	-200.	-100	457
RE	DISCCART	-200	100	457
RE	DISCCART	-200	200	457.
RE	DISCCART	-200	300	457.
$\mathbf{RE}$	DISCCART	-200	400	456.
RE	DISCCART	-200	500	454
RE	DISCCART	-200,	750	460
RE	DISCCART	-200	1000.	465.
RE	DISCCART	-200	1500.	470.
RE	DISCCART	-200	2000.	482.
RE	DISCCART	-200	2500	490
RE	DISCCART	-100.	-2500	448
RE	DISCCART	-100	-2000	458
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100	-1000	464
RE	DISCCART	-100	-750.	467
RE	DISCCART	-100	-500.	463
RE	DISCCART	-100	~400	463
RE	DISCCART	-100	-300	457
RE	DISCCART	-100	-200	457.
RE	DISCCART	-100	-100.	457.
RE	DISCCART	-100	100	457
RE	DISCCART	-100.	200	458
RE	DISCCART	-100	300	458
RE	DISCCART	-100	400.	460
RE	DISCCART	-100	500.	454.
RE	DISCCART	-100.	750.	460
RE	DISCCART	-100.	1000.	463
RE	DISCCART	-100	1500	470.
RE	DISCCART	-100	2000.	482.
RE	DISCCART	-100.	2500	483.
RE	DISCCART	100.	-2500.	448.
RE	DISCCART	100.	-2000.	458
RE	DISCCART	100.	-1500	468
RE	DISCCART	100.	-1000	476
RE	DISCCART	100	-750	482

RE	DISCCART	100	-500	474
RE	DISCCART	100.	-400.	475
RE	DISCCART		-300	
		100.		475
RE	DISCCART	100.	-200	466
RE	DISCCART	100.	-100	466
RE	DISCCART	100.	100.	466.
RE	DISCCART	100	200.	466
RE	DISCCART	100.	300.	466
RE	DISCCART	100	400	459
RE	DISCCART	100	500	457
RE	DISCCART	100	750	456.
$\mathbf{RE}$	DISCCART	100	1000	470.
$\mathbf{RE}$	DISCCART	100	1500	476.
RE	DISCCART	100.	2000	486.
RE	DISCCART	100	2500	478.
RE	DISCCART	200	-2500	448.
RE	DISCCART	200	-2000.	458.
RE	DISCCART	200	-1500	468
RE	DISCCART	200.	-1000	477
RE	DISCCART	200.	-750	480
RE	DISCCART	200	-500.	478
RE			-400	477
	DISCCART	200.		
RE	DISCCART	200	-300	477
RE	DISCCART	200	-200	470
RE	DISCCART	200	-100	470
RE	DISCCART	200	100	470
RE	DISCCART	200.	200.	470
RE	DISCCART	200.	300	468
RE	DISCCART	200	400	462
RE	DISCCART	200	500	457
RE	DISCCART	200	750	455
RE	DISCCART	200	1000	465
$\mathbf{RE}$	DISCCART	200	1500	474
RE	DISCCART	200	2000	483
RE	DISCCART	200	2500	476
RE	DISCCART	300	-2500.	452.
RE	DISCCART	300.	-2000	468
RE	DISCCART	300	-1500	473
RE	DISCCART	300	-1000	482
RE	DISCCART	300	-750.	483
RE	DISCCART	300.	-500.	477.
RE	DISCCART	300.	-400.	477.
RE	DISCCART	300.	-300	476.
RE	DISCCART	300.	-200	474
RE	DISCCART	300.	-100.	475
RE	DISCCART	300.	100.	473
RE	DISCCART	300.	200	470.
RE	DISCCART	300	300	467
RE	DISCCART	300	400	463
RE	DISCCART	300	500	457
RE	DISCCART	300	750	454
RE	DISCCART	300	1000	462
RE	DISCCART	300.	1500.	476,
RE	DISCCART	300.	2000.	477.

RE	DISCCART	300	2500.	474
RE	DISCCART	400	-2500.	457
RE	DISCCART	400	-2000	457
RE	DISCCART	400.	-1500	475
RE	DISCCART	400.	-1000	486.
RE	DISCCART	400.	-750.	486
RE	DISCCART	400.	-500	477
RE	DISCCART	400.	-400	476
RE	DISCCART	400.	-300	473
RE	DISCCART	400.	-200	469.
RE	DISCCART	400	-100.	468.
RE	DISCCART	400	100.	468
RE	DISCCART	400	200	468.
$\mathbf{RE}$	DISCCART	400.	300	465.
RE	DISCCART	400	400	462.
$\mathbf{RE}$	DISCCART	400	500	455.
$\mathbf{RE}$	DISCCART	400.	750	454
RE	DISCCART	400	1000	454
RE	DISCCART	400	1500	468.
$\mathbf{RE}$	DISCCART	400	2000	473.
$\mathbf{RE}$	DISCCART	400	2500.	473.
RE	DISCCART	500	-2500.	462
RE	DISCCART	500.	-2000	468
RE	DISCCART	500	-1500	478
RE	DISCCART	500	-1000	487
RE	DISCCART	500	-750	486
RE	DISCCART	500	-500.	478.
RE	DISCCART	500	-400	479
RE	DISCCART	500	-300	481
RE	DISCCART	500	-200	481.
RE		500.		
	DISCCART		-100	477
RE	DISCCART	500	100	473
RE	DISCCART	500	200	468
RE	DISCCART	500	300.	465
RE	DISCCART	500	400.	457.
RE	DISCCART	500.	500	454
RE	DISCCART	500	750	454
RE	DISCCART	500	1000	454
RE	DISCCART	500	1500	471
$\mathbf{RE}$	DISCCART	500	2000.	472.
RE	DISCCART	500.	2500.	472.
RE	DISCCART	750	-2500.	462.
RE	DISCCART	750.	-2000	474
RE	DISCCART	750.	-1500	483
RE	DISCCART	750.	-1000.	493.
RE	DISCCART	750	-750.	488
RE	DISCCART	750.	-500.	494.
RE	DISCCART	750.	-400	494
RE	DISCCART	750.	-300	487
RE	DISCCART	750	-200	487
RE	DISCCART	750	-100	484
RE	DISCCART	750	100.	482
RE	DISCCART	750.	200.	477.
RE	DISCCART	750.	300.	474.
				_ · <b>_ ·</b>

RE	DISCCART	750	400.	472
RE	DISCCART	750.	500	465
RE	DISCCART	750.	750	458
RE	DISCCART	750.	1000	454
RE	DISCCART	750	1500	457
RE	DISCCART	750	2000.	464.
RE	DISCCART	750.	2500.	473
RE	DISCCART	1000	-2500	464
RE	DISCCART	1000	-2000	480
$\mathbf{RE}$	DISCCART	1000	-1500	482.
RE	DISCCART	1000	-1000	501
RE	DISCCART	1000	-750.	490.
RE	DISCCART	1000	-500	493
RE	DISCCART	1000	-400	493
$\mathbf{RE}$	DISCCART	1000	-300	493.
RE	DISCCART	1000	-200.	484.
RE	DISCCART	1000	-100.	483.
RE	DISCCART	1000	100	483.
RE	DISCCART	1000	200	481.
RE	DISCCART	1000	300	477.
RE	DISCCART	1000.	400	476.
RE	DISCCART	1000.	500	472.
RE	DISCCART	1000	750	467
RE	DISCCART	1000	1000	463
RE	DISCCART	1000	1500	456.
RE	DISCCART	1000	2000.	466.
RE				483.
	DISCCART	1000	2500.	
RE	DISCCART	1500.	-2500	455.
RE	DISCCART	1500	-2000	473
RE	DISCCART	1500	-1500	481
RE	DISCCART	1500	-1000.	487.
RE	DISCCART	1500.	-750	492.
RE	DISCCART	1500	-500	487.
RE	DISCCART	1500	-400.	487.
RE	DISCCART	1500	-300.	486.
RE	DISCCART	1500	-200.	485.
RE	DISCCART	1500.	-100.	483.
RE	DISCCART	1500	100	483.
RE	DISCCART	1500	200.	483.
RE	DISCCART	1500	300.	483.
RE	DISCCART	1500	400.	483.
RE	DISCCART	1500.	500.	483.
RE	DISCCART	1500.	750	483
RE	DISCCART	1500.	1000	476
RE	DISCCART	1500	1500	468
RE	DISCCART	1500	2000	464
RE	DISCCART	1500	2500	475
RE	DISCCART	2000	-2500.	454.
RE	DISCCART	2000	-2000	468
RE	DISCCART	2000	-1500	473
RE	DISCCART	2000	-1000	485
RE	DISCCART	2000	-750	493
RE	DISCCART	2000	-500.	493
	DISCCART	2000.	-300. -400	489.
RE	DISCORT	4000.		407.

		2000 -	300	486.	,
	DISCCART		200	484.	
	DISCCART	2000	100	486,	
	DISCCART		100	486	
RE	DISCCART	2000	200	487	
RE	DISCCART	2000.	300	487	
$\mathbf{RE}$	DISCCART	2000.	400	487	
RE	DISCCART	2000	500	487	
RE	DISCCART	2000	750		
RE	DISCCART	2000. 1			
$\mathbf{RE}$	DISCCART		500.		
$\mathbf{RE}$	DISCCART		000	464	
RE		2000. 2		465	
RE		2500 -2			
RE	DISCCART	2500 -2	000.	473	
RE	DISCCART	25001	500	468	
RE	DISCCART	25001	000	483	
RE	DISCCART	2500	750.	484.	
RE	DISCCART	2500	500	484	
RE	DISCCART	2500 -	400	484	
RE	DISCCART	2500 -	300.	484	
RE		2500 -			
RE		2500 -			
RE		2500			
RE		2500			
RE		2500			
RE		2500.			
RE	DISCCART		500		
RE		2500			
RE		2500 1			,
RE		2500 1			
RE		2500 2			
RE		2500 2			
RE	DISCCART				
RE	DISCCART				
RE	DISCCART		-100		
RE	DISCCART		1000		
RE	DISCCART	-10000		000	475
RE	DISCCART	-10000		0000	475.
RE	DISCCART	15000.	1500		475
RE	DISCCART	15000.	-150		475
RE	DISCCART	13000		000.	475
RE	DISCCART	0		000.	475.
RE	DISCCART	15000	130	0.	475. 475
RE	DISCCART	-15000		0.	475
RE	DISCCART	-15000	164	000	475
				5000	
RE	DISCCART	-15000			475
RE		0	-17		475. 475
RE	DISCCART	5000	-17		475 475
RE	DISCCART	10000	-17		475. 475
RE	DISCCART	15000.		500.	475.
RE	DISCCART	-5000.		500.	475
RE	DISCCART	-10000		500.	475
RE	DISCCART	-15000	-17	500.	475

	DISCCART		20000.	475
	DISCCART	20000		
RE	DISCCART	0	-20000	475.
$\mathbf{RE}$	DISCCART	0		
RE	DISCCART		). 20000	
RE	DISCCART	-20000	)2000	0. 475.
RE	DISCCART		-5000	
$\mathbf{RE}$	DISCCART		-7500.	
RE	DISCCART	2500	-10000.	475
RE	DISCCART		-12500.	
RE	DISCCART	2500.	-15000.	475
RE	DISCCART	2500.	-17500.	475
RE	DISCCART	2500	~20000	475
RE	DISCCART	-5000	-2500	475
RE	DISCCART	10000	-2500	475.
RE	DISCCART	15000.	-2500.	475
RE	DISCCART		-2500.	
RE	DISCCART		20000	475
RE	DISCCART		20000.	475.
RE	DISCCART	-5000	20000.	
RE	DISCCART	5000	20000	475
RE	DISCCART		20000	475
RE	DISCCART		20000	
RE	DISCCART			
RE	DISCCART			
RE	DISCCART	-5000.	15000.	
RE	DISCCART		15000	475
RE	DISCCART		15000	
RE	DISCCART		15000	
RE	DISCCART			
RE	DISCCART		10000	
RE	DISCCART			
RE	DISCCART			
RE	DISCCART		10000	
RE	DISCCART			
RE	DISCCART			
RE	DISCCART			
RE	DISCCART	-10000	5000.	475
RE	DISCCART	-5000	5000.	475
RE	DISCCART	0000	5000.	475
RE	DISCCART	5000	5000.	475
RE	DISCCART	10000	5000.	475.
RE	DISCCART	15000	5000.	475.
RE	DISCCART	20000.	5000.	475.
RE	DISCCART			475.
		-20000.	0	475. 475
RE	DISCCART	-10000		
RE	DISCCART	-5000	0	475
RE	DISCCART	5000.	0.	475
RE	DISCCART	10000	0.	475. 475
RE	DISCCART	20000	0	475
RE	DISCCART	-20000.	-5000	475
RE	DISCCART	-15000	-5000	475.
RE	DISCCART	-10000	-5000	475.
RE	DISCCART	-5000	-5000	475

```
-5000
RE DISCCART
                 0
                             475.
             5000
RE DISCCART
                    -5000.
                            475
RE DISCCART
             10000
                     -5000.
                            475
RE DISCCART 15000
                    -5000. 475
RE DISCCART 20000. -5000
                            475
RE DISCCART -20000. -10000
                            475.
RE DISCCART -15000 -10000.
                            475.
RE DISCCART -5000. -10000.
                           475
RE DISCCART
             5000. -10000. 475
RE DISCCART 15000 -10000. 475
RE DISCCART 20000, -10000
                            475
RE DISCCART -20000 -15000 475
RE DISCCART -10000 -15000 475.
            -5000 -15000. 475.
RE DISCCART
             5000. -15000
RE DISCCART
                           475.
RE DISCCART 10000 -15000 475.
RE DISCCART 20000 -15000 475.
RE DISCCART -15000 -20000
                            475.
RE DISCCART -10000. -20000. 475
RE DISCCART
           -5000 -20000
                           475.
             5000 -20000 475
RE DISCCART
RE DISCCART
             10000 -20000
                           475.
RE DISCCART 15000 -20000 475.
RE FINISHED
** The MEteorology pathway begins here
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model. There are gaps in the met data
  INPUTFIL ISCST294 DAT
  ANEMHGHT 10 METERS
  SURFDATA 94823 1994 KOALCAMP
  UAIRDATA 94823 1994 NOTAVAIL
  STARTEND 94 01 01
                     94 12 31
  DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
            180
  WDROTATE
ME FINISHED
** The OUtput pathway begins here
OU STARTING
** RECTABLE will o/p high value summary for each receptor
  RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
  MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn Ambient Air Qual Objective for
** sulfur dioxide 24-hour is 300 ug/Nm<sup>3</sup> (acceptable).
  MAXIFILE 24 STATION 300.0
                               MAX24SO2 FIL 21
  MAXIFILE 24 OPENPIT 300.0 MAX24SO2 FIL 21
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
```

PLOTFILE	1 STATION 1ST K2001SO1 FST 24	
PLOTFILE	1 OPENPIT 1ST K2001SO1 FST 24	
PLOTFILE	24 STATION 1ST K2001SO2.FST 23	
PLOTFILE	24 OPENPIT 1ST K2001SO2.FST 23	
PLOTFILE	PERIOD STATION K2001SO3 FST 26	
PLOTFILE	PERIOD OPENPIT K2001SO3 FST 26	

OU FINISHED

```
**Project No 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is NOx-NO2
**
** All met data is from the Koala Camp Weather Station
** To run the model type:
**
**
      ISCST2EM K2001NO2 INP K2001NO2 OUT
**
** The results for this problem are provided in file K2001NO2 OUT
**
**NOTE: THE STACK HEIGHT FOR THE DIESEL POWER PLANT STACKS HAS BEEN
** INCREASED FROM 16 9 M TO 22 9 M THE FUEL FOR THE DIESEL POWER STATION
**
   CONTAINS 0 05 WT % SULPHUR
                                THE EVENTS PROCESSOR WILL BE USED FOR THIS
** MODEL ITERATION
                     THE DIESEL GENERATORS @ 70% OF FULL LOAD WILL BE USED
** TO PLOT 24-HOUR AND 7,416 HOUR NO2 CONCENTRATIONS THE DIESEL POWER
** PLANT EMISSION RATES HAVE BEEN INCREASED BY 15% TO ACCOUNT FOR ENGINE
**
   TO ENGINE VARIABILITY AND TEST VARIABILITY.
**
**
** The COntrol parameters for this model run are as follows:
CO STARTING
  TITLEONE BHP NWT Diamonds NOx-NO2
  MODELOPT DFAULT RURAL
                           CONC
  AVERTIME 1 24 PERIOD
  POLLUTID NOX
  TERRHGTS
            ELEV
   ELEVUNIT METERS
   RUNORNOT
            RUN
** EVENTFIL
            EVE24NOX INP DETAIL
   ERRORFIL
            ERRORNOX OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
SO LOCATION CAT3616A POINT
                               43 0
                                       45 0
                                               466.0
** The diesel power plant will operate at 70% of full load for 24 h/day
** The emission rates have already been adjusted, so use a emission
** factor of 1 0
SO EMISFACT CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                               43 0
                                       51 0
                                               466 0
SO EMISFACT CAT3616B HROFDY 24*1 0
                                       57 0
SO LOCATION CAT3616C POINT
                               43.0
                                               466 0
SO EMISFACT CAT3616C HROFDY 24*1.0
SO LOCATION CAT3616D POINT
                               43.0
                                       63.0
                                               466 0
SO EMISFACT CAT3616D HROFDY 24*1 0
SO LOCATION GLYBOILA POINT
                               12 0 -188.0
                                               466 0
** The diesel fired heating boilers both operate Dec -Mar., one boiler operates
** Sept., Oct , Nov and Apr , no boiler operation May to August;
** adjust emission factors accordingly Each boiler runs at avg 75% of full
** load
SO EMISFACT GLYBOILA MONTH
                              3*0 75 8*0 0 1*0 75
                               17.0 -188 0
SO LOCATION GLYBOILB POINT
                                               466 0
SO EMISFACT GLYBOILB MONTH
                              4*0.75 4*0 0
                                              4*0.75
```

** **		el generat er Brooks									ating b sulfur,	
**	-	ion estima										
**	Point Sou		QS	HS	TS	VS			9 100	Durru		
	Parameter		×~									
	SRCPARAM	CAT3616A	21.2	22.9		20		9				
	SRCPARAM	CAT3616B	21.2	22.9		20		9				
	SRCPARAM	CAT3616C	21.2 21.2	22 9		20.		9				
		CAT3616D	21 2	22 9		20		9				
	SRCPARAM	GLYBOILA		11 5				6				
	SRCPARAM	GLYBOILB	0 29	11 5				.6				
50	QUCTING!!!	GDIDOIDD	0 25	<b>TT</b> 2	100.							
**	Building	heights a	und widt	hs ar	e inpu	t foi	cal	cula	tion d	of bui	lding	
* *	downwash	-			_							
**	flow vec	tor and in	-		_	_		-				
	BUILDHGT	CAT3616A	36*13	9								
	BUILDWID	CAT3616A	0 0	0 0	0 0	0 (	0 0	0	0 0	0.0	0 0	
		CAT3616A	0 0	0 0	0.0	0 0	) 0	0	0 0	0.0	0.0	
		CAT3616A	0.0	3.00	3.05	3.1	L9 3	46	3 92	4.67	6 00	
		CAT3616A	8.77	17.28	30.00	30 4	16 31	93	34 64	39.16	46 67	
		CAT3616A	60 00	54 27	51.79	51 (	00					
	BUILDHGT	CAT3616B	36*13	9								
	BUILDWID	CAT3616B	00	0 0	0.0	0 (	0 (	0	0 0	0.0	0.0	
		CAT3616B	0.0	0 0	0.0	0.0	0 0	0	0 0	0.0	0 0	
		CAT3616B	0.0	9.00	9.14	9 5	58 10	.39	11 75	14.00	18 00	
		CAT3616B	26.31	30 46	30.00	30 4	16 31	93	34 64	39 16	46 67	
		CAT3616B	51.96	47 89	45 69	45 (	00					
	BUILDHGT	CAT3616C	36*13									
	BUILDWID	CAT3616C	0.0	00	0.0	0 (		0	00	0 0	0 0	
		CAT3616C	0.0	0 0	0 0	0 (		0	0 0	0 0	0 0	
		CAT3616C	0 0								30 00	
		CAT3616C						93	34.64	39.16	46 67	
		CAT3616C			39.60	39.0	00					
	BUILDHGT	CAT3616D	36*13									
	BUILDWID	CAT3616D	0 0	0 0	0 0	0 (		.0	0 0	0 0	0.0	
		CAT3616D	0 0	0.0	0 0	0.0		.0	0 0	0 0	0.0	
		CAT3616D	0 0								34 64	
		CAT3616D						93	34 64	39.10	43 08	
		CAT3616D			33.51	. 33 (	10					
	BUILDHGT	GLYBOILA			2 31	ר. ר	1 2	11 /	00	5.85	11 52	
	BUILDWID	GLYBOILA GLYBOILA									7.45	
		GLYBOILA		7 00	7 11		5 8.			10.89		
		GLYBOILA							5.85	4 00	3 11	
		GLYBOILA			28.00			22	2.05		<del>-</del>	
	BUILDHGT	GLYBOILB			2.13	2,0	•					
	BUILDWID	GLYBOILB		2.13	2 31	2.6	13.	11	4.00	5 85	11.52	
	لىدىد 11 مونيە يە ت مە	GLYBOILB							9.14		7 45	
		GLYBOILB	7.11		7 11		58			10 89		
		GLYBOILB							5,85	4.00	3.11	
		GLYBOILB		2 31	2 13	2 0						

** The open pits are also sources of NO2 emissions from mobile equipment

the Education Danda Dit	
** Firstly, Panda Pit. SO LOCATION PANDAP AREA 1300 1200. 460.	
SO SRCPARAM PANDAP 0 0000579 1.0 600 0 ** Secondly, Koala Pit.	
SO LOCATION KOALAP AREA 500. 300. 460.	
SO SRCPARAM KOALAP 0.0000575 1 0 350 0	
** The Sources are divided into two different groups below:	
SRCGROUP STATION CAT3616A CAT3616B CAT3616C CAT3616D	
SRCGROUP STATION GLYBOILA GLYBOILB	
SRCGROUP OPENPIT PANDAP KOALAP	
SO FINISHED	
** Details for the REceptor grid are provided below.	
RE STARTING	
** A total of 498 discrete receptors will be used.	
RE DISCCART -2500 -2500. 457	
RE DISCCART -2500 -2000 456	
RE DISCCART -2500 -1500 456.	
RE DISCCART -2500 -1000. 453	
RE DISCCART -2500, -750, 453.	
RE DISCCART -2500 -500 459	
RE DISCCART -2500400 468	
RE DISCCART -2500 -300 468	
RE DISCCART -2500 -200 467	
RE DISCCART -2500100 466	
RE DISCCART -2500. 100 467	
RE DISCCART -2500. 200 468	
RE DISCCART -2500. 300 473	
RE DISCCART -2500. 400 475	
RE DISCCART -2500 500 478	
RE DISCCART -2500 750 485	
RE DISCCART -2500, 1000, 485	
RE DISCCART -2500 1500 485	
RE DISCCART -2500 2000 501	
RE DISCCART -2500 2500 501	
RE DISCCART -2000 -2500. 455	
RE DISCCART -20002000. 458.	
RE DISCCART -2000 -1500. 457	
RE DISCCART -2000 -1000. 453	
RE DISCCART -2000 -750. 450	
RE DISCCART -2000, -500. 448.	
RE DISCCART -2000400. 448.	
RE DISCCART -2000, -300, 448.	
RE DISCCART -2000200. 448.	
RE DISCCART -2000100 451	
RE DISCCART -2000. 100 466	
RE DISCCART -2000 200 464	
RE DISCCART -2000 300 465	
RE DISCCART -2000 400. 469	
RE DISCCART -2000. 500. 473.	
RE DISCCART -2000 750. 480	
RE DISCCART -2000 1000 478.	
RE DISCCART -2000 1500 492.	
RE DISCCART -2000. 2000 494	
RE DISCCART -2000 2500 505	

RE	DISCCART	-1500	-2500	448
RE	DISCCART	-1500	-2000.	452
RE	DISCCART	-1500	-1500.	455
RE	DISCCART	-1500.	-1000.	460.
RE	DISCCART	-1500	-750.	454.
RE	DISCCART	-1500	-500	454.
RE	DISCCART	-1500.	-400	454.
RE	DISCCART	-1500	-300.	454
RE	DISCCART	-1500.	-200	454
RE	DISCCART	-1500	-100.	454
RE	DISCCART	-1500	100	454
RE	DISCCART	-1500.	200.	454.
RE	DISCCART	-1500	300.	456.
RE	DISCCART	-1500	400.	463
RE	DISCCART	-1500	500.	467.
RE	DISCCART	-1500.	750	477.
RE	DISCCART	-1500.	1000	477
RE	DISCCART	-1500	1500.	487
RE	DISCCART	-1500	2000	487
RE	DISCCART	-1500.	2500	497
RE	DISCCART	-1000.	-2500	448
RE	DISCCART	-1000.	-2000	448
RE	DISCCART	-1000.	-1500.	
RE	DISCCART	~1000.	-1000	453
RE	DISCCART	-1000.	-750	453
RE	DISCCART	-1000.	-500	453
RE	DISCCART	-1000,	-400	453
RE	DISCCART	-1000.	-300	456
RE	DISCCART	-1000.	-200.	455.
RE	DISCCART	-1000.	-100	455
RE	DISCCART	-1000	100	454
RE	DISCCART	-1000	200.	
RE	DISCCART	-1000	300.	
RE		-1000.	400	454.
RE	DISCCART	-1000.	±00 500.	
RE		-1000	750.	
RE	DISCCART	-1000	1000.	
	DISCCART	-1000	1500.	482.
RE RE	DISCCART	-1000	2000.	484.
RE	DISCCART	-1000	2500.	497.
RE	DISCCART	-750	-2500.	448.
RE		-750	-2000.	448.
	DISCCART DISCCART	-750		440. 454.
RE			-1500. -1000	454. 456
RE	DISCCART	-750.	-1000	
RE	DISCCART	-750.		455
RE	DISCCART	-750	-500	456
RE	DISCCART	-750 -750	-400	457
RE	DISCCART		-300	460.
RE	DISCCART	-750	-200.	458
RE	DISCCART	-750	-100.	460 454
RE	DISCCART	-750.	100.	454
RE	DISCCART	-750.	200	454
RE	DISCCART	-750	300	454
RE	DISCCART	-750	400.	455

RE		-750	500.	
RE	DISCCART	-750	750.	
RE	DISCCART	-750	1000.	474
RE	DISCCART	-750	1500.	487
RE	DISCCART	-750.	2000	487
RE	DISCCART	-750	2500	499.
RE	DISCCART	-500.	-2500.	448
RE	DISCCART	-500	-2000.	448
RE	DISCCART	-500.	-1500	457
RE	DISCCART	-500.	-1000	466
RE	DISCCART	-500.	-750	457
RE	DISCCART	-500	-500	457.
RE	DISCCART	-500.	-400.	457
$\mathbf{RE}$	DISCCART	-500.	-300	457
RE	DISCCART	-500	-200	456
RE	DISCCART	-500	-100	455.
RE	DISCCART	-500	100.	454
RE	DISCCART	-500.	200.	454
RE	DISCCART	-500	300.	454
RE	DISCCART	-500	400	454.
RE	DISCCART	-500	500.	455
RE	DISCCART	-500,	750.	455
RE	DISCCART	-500.	1000.	
RE	DISCCART	-500	1500.	
RE	DISCCART	-500	2000.	
RE	DISCCART	-500	2500.	
RE	DISCCART	-400	-2500.	
RE	DISCCARI	-400.	-2000.	
RE	DISCCART	-400	-1500.	
RE	DISCCART	-400	-1000.	
RE	DISCCART	-400	-750.	457.
RE	DISCCART	-400	-500.	457
RE	DISCCART	-400	-400.	
RE	DISCCART	-400	-300.	
RE	DISCCART	-400	-200.	
RE		-400	-100.	
RE	DISCCART	-400.	100.	
RE	DISCCART	-400.	200	454
RE	DISCCART	-400.	300	454
RE	DISCCART	-400	400	454
RE	DISCCART	-400	500	454
RE	DISCCART	-400.	750	457.
RE	DISCCART	-400	1000	463
RE	DISCCART	-400	1500	475
RE	DISCCART	-400	2000.	485
RE	DISCCART	-400	2500.	499.
RE	DISCCART	-300	-2500.	448
$\mathbf{RE}$	DISCCART	-300	-2000.	457.
RE	DISCCART	-300.	-1500	467.
RE	DISCCART	-300.	-1000	458
$\mathbf{RE}$	DISCCART	-300	-750	458
RE	DISCCART	-300	-500	462
RE	DISCCART	-300	-400	459
RE	DISCCART	-300.	-300	455.

RE	DISCCART	-300.	-200	454
RE	DISCCART	-300	-100	454
RE	DISCCART	-300	100	454
RE	DISCCART	-300	200	454.
RE	DISCCART	-300.	300.	454
RE	DISCCART	-300.	400	454
RE	DISCCART	-300.	500	454
RE	DISCCART	-300.	750	462.
RE	DISCCART	-300.	1000	466.
$\mathbf{RE}$	DISCCART	-300.	1500.	468.
RE	DISCCART	-300.	2000.	487
RE	DISCCART	-300.	2500	495
RE	DISCCART	-200.	-2500	448
RE	DISCCART	-200.	-2000	462.
RE	DISCCART	-200.	-1500.	467
RE	DISCCART	-200	-1000	461
RE	DISCCART	-200	-750	462.
RE	DISCCART	-200	-500.	464.
RE	DISCCART	-200	-400.	462
RE	DISCCART	-200	-300	457
RE	DISCCART	-200	-200	456
RE	DISCCART	-200	-100	457
RE	DISCCART	-200.	100.	457.
RE	DISCCART	-200.	200.	457
RE	DISCCART	-200.	300	457
RE	DISCCART	-200.	400	456
RE	DISCCART	-200.	500	454
RE	DISCCART	-200.	750	460
RE	DISCCART	-200.	1000.	465.
RE	DISCCART	-200.	1500.	470
RE	DISCCART	-200.	2000	482
				490
RE	DISCCART	-200	2500	
RE	DISCCART	-100.	-2500.	
RE	DISCCART	-100.	-2000.	458.
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100	-1000	464
RE	DISCCART	-100	-750	467
RE	DISCCART	-100	-500.	463.
RE	DISCCART	-100	-400	463
RE	DISCCART	-100	-300	457
RE	DISCCART	-100	-200	457
RE	DISCCART	-100	~100.	457
RE	DISCCART	-100	100.	457.
RE	DISCCART	-100.	200.	458.
$\mathbf{RE}$	DISCCART	-100.	300	458
RE	DISCCART	-100.	400	460
RE	DISCCART	-100	500	454
RE	DISCCART	-100	750	460
RE	DISCCART	-100	1000	463
RE	DISCCART	-100.	1500,	470.
RE	DISCCART	-100.	2000.	482.
RE	DISCCART	-100	2500.	483.
RE	DISCCART	100.	-2500.	448.
RE	DISCCART	100.	-2000.	458

<b>DD</b>	DIGGONDO	100	1 5 0 0	400
RE	DISCCART	100.	-1500	468
RE	DISCCART	100.	-1000	476
RE	DISCCART	100.	-750	482
RE	DISCCART	100.	-500	474
RE	DISCCART	100	-400	475.
RE	DISCCART	100.	-300	475
RE	DISCCART	100	-200.	466
$\mathbf{RE}$	DISCCART	100	-100.	466
RE	DISCCART	100	100.	466.
RE	DISCCART	100	200.	466.
RE	DISCCART	100.	300	466
RE	DISCCART	100.	400.	459.
RE	DISCCART	100	500	457
RE	DISCCART	100	750	456
RE	DISCCART	100	1000	470
RE	DISCCART	100	1500.	476.
RE	DISCCART	100	2000	486
RE	DISCCART	100	2500	478
RE	DISCCART	200	-2500	448.
RE	DISCCART	200.	-2000.	458.
RE	DISCCART	200.	-1500.	468.
RE	DISCCART	200	-1000	477
RE	DISCCART	200	~750	480
RE	DISCCART	200.	-500	478
RE	DISCCART	200.	-400	477
RE	DISCCART	200	-300	477
RE	DISCCART	200.	-200	470
RE	DISCCART	200	-100	470
RE	DISCCART	200	100	470
$\mathbf{RE}$	DISCCART	200.	200.	470
RE	DISCCART	200	300	468
RE	DISCCART	200	400	462
RE	DISCCART	200	500	457
RE	DISCCART	200	750	455
RE	DISCCART	200.	1000	465
RE	DISCCART	200	1500	474
RE	DISCCART	200	2000.	483
RE	DISCCART	200	2500	476
RE	DISCCART	300.	-2500	452
RE	DISCCART	300.	-2000.	468
RE	DISCCART	300.	-1500	473.
RE	DISCCART	300	-1000	482
RE	DISCCART	300	-750	483
RE	DISCCART	300	-500	477
RE	DISCCART	300	-400	477
RE	DISCCART	300	-300.	476.
RE	DISCCART	300	-200.	474.
RE	DISCCART	300.	-100	475.
RE	DISCCART	300	100	473.
RE	DISCCART	300	200	470
RE	DISCCART	300	300	467
RE	DISCCART	300	400	463
RE	DISCCART	300	500.	457
RE	DISCCART	300	750.	454.
	~ - 0 0 0 0 0 0 0 0 0 0	200		

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RE	DISCCART	300	1000	462.
RE	DISCCART	300	1500	476
RE	DISCCART	300	2000.	477
RE	DISCCART	300.	2500	474
RE	DISCCART	400	-2500	457
RE	DISCCART	400	-2000	469.
RE	DISCCART	400.	-1500.	475
RE	DISCCART	400.	-1000	486
RE	DISCCART	400.	-750	486
RE	DISCCART	400.	-500	477
RE	DISCCART	400.	-400	476
RE	DISCCART	400.	-300	473.
RE	DISCCART	400.	-200.	469.
RE	DISCCART	400.	-100	468
RE	DISCCART	400	100	468
RE	DISCCART	400	200	468.
RE	DISCCART	400	300	465.
RE	DISCCART		400	
		400		462
RE	DISCCART	400	500	455
RE	DISCCART	400	750	454.
RE	DISCCART	400	1000.	454
RE	DISCCART	400	1500.	468.
RE	DISCCART	400.	2000.	473
$\mathbf{RE}$	DISCCART	400	2500	473
RE	DISCCART	500	-2500	462
RE	DISCCART	500	-2000	468
RE	DISCCART	500	-1500	478
RE	DISCCART	500	-1000	487
RE	DISCCART	500	-750	486
RE	DISCCART	500	-500	478
RE	DISCCART	500	-400.	479.
$\mathbf{RE}$	DISCCART	500.	-300	481
RE	DISCCART	500	-200	481
RE	DISCCART	500	-100	477
RE	DISCCART	500	100.	473
RE	DISCCART	500	200	468.
RE	DISCCART	500.	300	465
RE	DISCCART	500.	400.	457
RE	DISCCART	500.	500.	454.
RE	DISCCART	500	750	454
RE	DISCCART	500	1000	454
RE	DISCCART	500.	1500.	471
RE	DISCCART	500	2000.	472.
RE	DISCCART	500	2500	472
RE	DISCCART	750	-2500.	462
RE	DISCCART	750	-2000	474.
RE	DISCCART	750.	-1500	483.
RE	DISCCART	750	-1000	493
RE	DISCCART	750	-750	488
RE	DISCCART	750	-500	494
RE	DISCCART	750.	-400.	494
RE	DISCCART	750	-300.	487.
RE	DISCCART	750	-200.	487
RE	DISCCART	750.	-100	484.

RE	DISCCART	750	100.	482.
RE	DISCCART	750.	200.	477.
RE	DISCCART	750	300	474.
RE	DISCCART	750	400	472.
RE	DISCCART	750	500	465.
RE	DISCCART	750	750.	458.
RE	DISCCART	750.	1000	454.
RE	DISCCART	750	1500	457.
RE	DISCCART	750	2000	464.
RE	DISCCART	750	2500.	473.
RE	DISCCART	1000.	-2500	464.
RE	DISCCART	1000	-2000	480.
RE	DISCCART	1000	-1.500	482.
RE	DISCCART	1000	-1000.	501.
RE	DISCCART	1000.	-750	490
RE	DISCCART	1000	-500	493
RE	DISCCART	1000	-400	493.
RE	DISCCART	1000	-300	493.
RE	DISCCART	1000	-200.	484.
RE	DISCCART	1000.	-100.	
RE	DISCCART	1000	100.	
RE	DISCCART	1000	200.	481
RE	DISCCART	1000	300.	477
RE	DISCCART	1000	400	476
RE	DISCCART	1000	500.	472
RE	DISCCART	1000.	750.	467.
RE	DISCCART	1000.	1000	463
			1500	405 456
RE	DISCCART	1000		
RE	DISCCART	1000	2000	466
RE	DISCCART	1000.	2500	483
RE	DISCCART	1500.	-2500	455
RE	DISCCART	1500.	-2000.	473
RE	DISCCART	1500	-1500	481
RE	DISCCART	1500	-1000	487
RE	DISCCART	1500	-750	492
RE	DISCCART	1500.	-500.	487.
RE	DISCCART	1500.	-400.	487
RE	DISCCART	1500	-300	486
RE	DISCCART	1500	-200.	485.
RE	DISCCART	1500	-100	483
RE	DISCCART	1500.	100	483
RE	DISCCART	1500.	200	483
$\mathbf{RE}$	DISCCART	1500.	300.	483.
RE	DISCCART	1500	400	483
RE	DISCCART	1500	500	483
RE	DISCCART	1500	750	483
RE	DISCCART	1500	1000	476
RE	DISCCART	1500	1500.	468.
RE	DISCCART	1500	2000	464.
RE	DISCCART	1500.	2500.	475.
$\mathbf{RE}$	DISCCART	2000.	-2500	454.
RE	DISCCART	2000	-2000	468
RE	DISCCART	2000	-1500	473
RE	DISCCART	2000	-1000	485

			H F A	100
	DISCCART		-750	
	DISCCART		-500	
RE	DISCCART		-400	
RE	DISCCART		-300.	486
RE	DISCCART			484
RE	DISCCART	2000	-100	486.
RE	DISCCART	2000.	100.	486.
RE	DISCCART	2000.	200.	487
RE	DISCCART	2000.	300.	487
RE	DISCCART	2000.	400	487
RE	DISCCART	2000.	500	487
RE	DISCCART	2000	750	492
RE	DISCCART		1000	487
RE	DISCCART			
RE	DISCCART		2000	
RE	DISCCART		2500	
RE	DISCCART		-2500	
RE	DISCCART		-2000.	
RE	DISCCART			
			-1500	
RE	DISCCART			
RE	DISCCART		-750	
RE	DISCCART		-500.	
RE	DISCCART		-400.	
RE	DISCCART			
RE	DISCCART		-200	
RE	DISCCART		-100	
RE	DISCCART		100	
RE	DISCCART	2500	200.	494.
RE	DISCCART	2500.	300	497
RE	DISCCART	2500	400	497
RE	DISCCART	2500	500	497
RE	DISCCART	2500	750	497
$\mathbf{RE}$	DISCCART	2500.	1000	493
RE	DISCCART	2500	1500	484
RE	DISCCART	2500	2000	473
RE	DISCCART	2500	2500	468
RE	DISCCART	10000	10000	) 475
RE	DISCCART	10000	-10000	) 475
RE	DISCCART	0	-10000	). 475.
RE	DISCCART	0	10000	) 475
RE	DISCCART	-10000.	10000	
RE	DISCCART	-10000	-10000	) 475
RE	DISCCART	15000.	15000	
RE	DISCCART	15000	-15000	
RE	DISCCART	0.	-15000	
RE	DISCCART	0.	15000	
RE	DISCCART	15000		0 475
RE	DISCCART	-15000		0 475
RE	DISCCART	-15000	1500	
RE	DISCCART	-15000.	-1500	
RE	DISCCART	-130000.	-1750	
RE	DISCCART	5000.	-1750	
RE	DISCCARI	10000.	-1750	
	DISCCARI	15000.	-1750	
RE	DISCORT	12000	-1/200	U. 4/3

RE	DISCCART		-17500	475.
RE	DISCCART	-10000.		475.
RE	DISCCART		-17500	475
RE	DISCCART	20000.	20000.	475
RE	DISCCART	20000.	-20000	475
RE	DISCCART	0	-20000	475
RE	DISCCART	0	20000.	475
RE	DISCCART	-20000	20000	475
RE	DISCCART	-20000	-20000	475
RE	DISCCART	2500	-5000	475.
RE	DISCCART	2500	-7500	475.
RE	DISCCART	2500	-10000	475.
RE	DISCCART	2500	-12500	475
RE	DISCCART	2500	-15000.	475
RE	DISCCART	2500	-17500	475
RE	DISCCART	2500	-20000	475
RE	DISCCART	-5000	-2500.	475.
RE	DISCCART	10000.	-2500	475
RE	DISCCART	15000	-2500	475
RE	DISCCART	20000	-2500	475.
RE	DISCCART	-15000	20000.	475
RE	DISCCART	-10000.	20000.	475
RE	DISCCART	-5000	20000	475
RE	DISCCART	5000	20000.	475
RE	DISCCART	10000	20000.	475
RE	DISCCART	15000	20000.	475.
RE	DISCCART	-20000	15000.	475
RE	DISCCART	-10000.	15000.	475
RE	DISCCART	-5000	15000	475
RE	DISCCART	5000	15000	475
RE	DISCCART	10000	15000,	475.
RE	DISCCART	20000	15000	475
RE	DISCCART	-20000	10000	475
RE	DISCCART	-15000	10000	475
RE	DISCCART	-5000	10000	475
RE	DISCCART	5000	10000.	475.
RE	DISCCART	15000	10000	475
$\mathbf{RE}$	DISCCART	20000	10000	475
$\mathbf{RE}$	DISCCART	-20000	5000	475.
RE	DISCCART	-15000.	5000	475.
RE	DISCCART	-10000.	5000	475
RE	DISCCART	-5000	5000.	475
RE	DISCCART	0	5000	475
RE	DISCCART	5000	5000	475
RE	DISCCART	10000	5000	475
RE	DISCCART	15000.	5000.	475
RE	DISCCART	20000	5000.	475
RE	DISCCART	-20000	0.	475
RE	DISCCART	-10000	0.	475
RE	DISCCART	-5000.	0	475
RE	DISCCART	5000.	ů 0	475.
RE	DISCCART	10000	0	475
RE	DISCCART	20000	0	475
RE	DISCCART	-20000	-5000.	475.
КĿ	DISCORT	-20000	5000.	

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RE DISCCART -15000
                     -5000.
                             475
RE DISCCART -10000. -5000.
                             475
                    -5000
RE DISCCART
             -5000.
                             475
RE DISCCART
                 0
                     -5000
                             475
RE DISCCART
              5000
                     -5000
                             475.
RE DISCCART
             10000. -5000. 475
                    -5000
RE DISCCART
            15000.
                             475
RE DISCCART 20000. -5000
                             475
RE DISCCART -20000 -10000
                             475
RE DISCCART
            -15000
                    -10000
                             475.
RE DISCCART
             -5000 -10000
                             475.
RE DISCCART
             5000
                    -10000. 475.
RE DISCCART
             15000
                    -10000. 475
RE DISCCART
             20000
                    -10000
                             475
RE DISCCART -20000 -15000
                            475
RE DISCCART -10000. -15000
                             475
RE DISCCART
            -5000 ~15000
                             475
RE DISCCART
              5000 -15000
                             475.
RE DISCCART
             10000 -15000.
                           475
RE DISCCART
            20000 -15000
                             475
            -15000. -20000
RE DISCCART
                             475
                   -20000
RE DISCCART -10000
                             475
            -5000 -20000
RE DISCCART
                            475
RE DISCCART
            5000 -20000. 475.
RE DISCCART
             10000
                    -20000.
                             475.
RE DISCCART
             15000 -20000.
                            475
RE FINISHED
**
    The MEteorology pathway begins here
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
               The WDROTATE is used to convert the
** were used
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model
   INPUTFIL ISCST294 DAT
   ANEMHGHT
            10 METERS
   SURFDATA 94823 1994 KOALCAMP
   UAIRDATA 94823 1994 NOTAVAIL
   STARTEND 94 01 01
                       94 12 31
   DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
   WDROTATE
            180
ME FINISHED
** The EVent pathway begins here.
**EV STARTING
**
      EVENTPER HIGHNOX 24 PWRPLANT
                                    94030624
**
      EVENTLOC 300 0 -750 0 483 0
**EV FINISHED
** The OUtput pathway begins here.
OU STARTING
** RECTABLE will o/p high value summary for each receptor
   RECTABLE ALLAVE FIRST
```

```
** MAXTABLE will o/p overall maximum value summary tables
MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn Ambient Air Qual. Objective for
** nitrogen dioxide 24-hour is 200 ug/Nm<sup>3</sup> (acceptable)
MAXIFILE 24 STATION 200.0 MX24NOX FIL 22
MAXIFILE 24 OPENPIT 200.0 MX24NOX FIL 22
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
PLOTFILE 1 STATION 1ST K2001N01.FST 24
PLOTFILE 1 OPENPIT 1ST K2001N01 FST 24
PLOTFILE 24 OPENPIT 1ST K2001N02 FST 25
PLOTFILE 24 OPENPIT 1ST K2001N03.FST 26
PLOTFILE PERIOD STATION K2001N03.FST 26
```

```
OU FINISHED
```

```
**Project No 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is TSP
**
** All met data is from the Koala Camp Weather Station
** To run the model type:
**
**
     ISCST2 K2007TSP INP K2007TSP.OUT
**
** The results for this problem are provided in file K2007TSP OUT
**
**NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM
** 16.9 M TO 22 9 M FOR THIS MODEL ITERATION
                                               THE FUEL FOR THE DIESEL
** POWER STATION CONTAINS 0 05 WT % SULPHUR
                                             THE TSP EMISSION RATE HAS
** BEEN INCREASED BY 40% TO ACCOUNT FOR AIR QUALITY PERMIT APPLICATION
** PURPOSES THE EVENT PROCESSOR WILL NOT BE USED FOR THIS ITERATION
** THIS MODEL ITERATION IS FOR FY2007 (Year 11)
**
** The COntrol parameters for this model run are as follows:
CO STARTING
  TITLEONE BHP NWT Diamonds Mineral Processing Plant
  MODELOPT DFAULT RURAL
                          CONC
  AVERTIME 1 24 PERIOD
  POLLUTID TSP
  TERRHGTS ELEV
  ELEVUNIT METERS
  RUNORNOT
            RUN
  ERRORFIL
            ERRORTSP OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
** The diesel power plant will operate at 70% of full load for 24 h/day
** The emission rates have already been adjusted, so use a emission
** factor of 1 0. Eight gensets will operate.
SO LOCATION CAT3616A POINT
                               43 0
                                       45.0
                                               466.0
SO EMISFACT CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                               43 0
                                       51 0
                                               466.0
SO EMISFACT CAT3616B HROFDY 24*1 0
SO LOCATION CAT3616C POINT
                               43 0
                                       57 0
                                               466 0
SO EMISFACT CAT3616C HROFDY 24*1 0
SO LOCATION CAT3616D POINT
                               43.0
                                               466 0
                                       63 0
SO EMISFACT CAT3616D HROFDY
                              24*1 0
                                               466 0
SO LOCATION CAT3616E POINT
                               43.0
                                       69 0
SO EMISFACT CAT3616E HROFDY 24*1 0
SO LOCATION CAT3616F
                                       75 0
                                               466 0
                      POINT
                               43 0
SO EMISFACT CAT3616F HROFDY 24*1 0
                                               466 0
SO LOCATION CAT3616G POINT
                               43 0
                                       81 0
SO EMISFACT CAT3616G HROFDY 24*1.0
SO LOCATION CAT3616H
                      POINT
                               43 0
                                       87 0
                                               466 0
SO EMISFACT CAT3616H HROFDY 24*1 0
```

** The diesel fired heating boilers both operate Dec.-Mar , one boiler operates
** Sept , Oct., Nov and Apr., no boiler operation May to August;

** adjust emission factors accordingly Each boiler runs at avg 75% of full ** load SO LOCATION GLYBOILA POINT 12 0 -188.0 466.0 SO EMISFACT GLYBOILA MONTH 3*0 75 8*0.0 1*0.75 SO LOCATION GLYBOILB POINT 17 0 -188 0 466 0 SO EMISFACT GLYBOILB MONTH 4*0.75 4*0 0 4*0 75 SO LOCATION PRIMCRUS POINT -150.0 475 0 490 0 ** The primary crusher will operate for 10 hours/day so adjust the ** emission factor accordingly 7*0.0 10*1 0 7*0.0 SO EMISFACT PRIMCRUS HROFDY -203 0 SO LOCATION RECLAIM POINT 196.0 475 0 SO LOCATION PROPLANT POINT -96.0 106 0 466.0 SO LOCATION RECPLANT POINT -104 0 52 0 466.0 ** The Recovery Plant Area Wet Gas Scrubber operates 12 hr/d, adjust the * * emission factor accordingly SO EMISFACT RECPLANT HROFDY 7*0 0 12*1 0 5*0.0 ** The diesel generators will use 0 05% wt sulfur fuel, the heating boilers ** will use No. 2 distillate fuel @ 0 2% wt. sulfur ** Point Sources QS HSTSVS DS ** Parameters: - - - -----_ _ _ _ _ _ _ _ _ _ _ SO SRCPARAM CAT3616A 0 185 22.9 20.2 0 9 712. SO SRCPARAM CAT3616B 0 185 22.9 712. 20 2 0.9 SO SRCPARAM CAT3616C 0 185 22 9 712 20 2 0 9 SO SRCPARAM CAT3616D 0.185 22.9 712 20 2 0 9 SO SRCPARAM CAT3616E 0.185 22 9 712 20 2 0 9 SO SRCPARAM CAT3616F 0.185 22 9 712. 20.2 0 9 SO SRCPARAM CAT3616G 0.185 22 9 712. 20 2 0.9 SO SRCPARAM CAT3616H 0 185 22 9 712. 20 2 0 9 SO SRCPARAM GLYBOILA 0.029 11 5 433 70 06 SO SRCPARAM GLYBOILB 0.029 11 5 433. 70 06 SO SRCPARAM PRIMCRUS 0.425 88278. 22.1 0 7 SO SRCPARAM RECLAIM 0.386 11.9 278. 20 1 0.7 SO SRCPARAM PROPLANT 1.39 32.0 278 18 0 14 SO SRCPARAM RECPLANT 0.24 35 0 278 93 0.8 ** Fugitive dust sources include the Koala, Fox and Leslie open pits, ** haul roads from Koala/Fox/Leslie to the ROM stockpile, and ** the waste dumps. ** Firstly, the Koala pit. SO LOCATION KOALAP AREA 400. 200 460 SO SRCPARAM KOALAP 0 000000109 1 0 525 ** Secondly, the Fox pit SO LOCATION FOXP AREA -4000. -6300. 442 SO SRCPARAM FOXP 0 00000162 1 0 575. ** Thirdly, the Leslie pit. SO LOCATION LESLIEP AREA -2300. -3800 442 SO SRCPARAM LESLIEP 0 000000832 1 0 800 ** Fourth, the Panda and Koala waste dumps. SO LOCATION PKDUMP AREA -1500 800 495 SO SRCPARAM PKDUMP 0.0000257 1 0 2000.0

## APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE

CAT3616H 32.40 31 00 30.40 31 00 28 50 19 50 15 20 12 70 CAT3616H 11.40 10 50 10.00 9 00 BUILDHGT GLYBOILA 36*8.5 BUILDWID GLYBOILA 2.03 2.13 2 31 2.61 3.11 4.00 5 85 11 52 GLYBOILA 21.00 21 32 22 35 14 00 10.89 9 14 8 08 7 4 5 GLYBOILA 7 11 7.00 7 11 7 45 8 08 9 14 10 89 14.00 GLYBOILA 22.35 28 43 28.00 21 00 11 52 5 85 4.00 3 11 GLYBOILA 2.61 2 31 2.13 2 00 BUILDHGT GLYBOILB 36*8 5 BUILDWID GLYBOILB 2 03 2.13 2.31 2.61 3.11 4 00 5 85 11.52 GLYBOILB 16 00 16.25 17.03 14.00 10.89 9,14 8 08 7 45 GLYBOILB 7 11 7 00 7 11 7,45 8 08 9.14 10 89 14 00 GLYBOILB 22 35 33 51 33 00 21 00 11 52 5 85 4 00 3.11 GLYBOILB 2 61 2 31 2 13 2.00 PROPLANT 36*28 5 BUILDHGT BUILDWID PROPLANT 2.03 2.13 2.61 2 31 3.114 00 5 85 11 52 PROPLANT 26 00 26 40 27.67 30 02 33 94 33 94 30 02 27.67 PROPLANT 26 40 26.00 69 05 72 36 78 52 88.77 105.79 136 00 PROPLANT 138 34 132.01 130.00 11 52 585 4.00 3.11 2 61 PROPLANT 2.31 2 13 2.03 2.00 BUILDHGT RECPLANT 36*28 5 BUILDWID RECPLANT 62 96 65 98 71 59 31 11 26 11 23 09 21 28 20 31 RECPLANT 20 00 20 31 23 39 16 00 12 45 10 44 9 23 8.51 RECPLANT 8 12 8.00 8 12 8 51 9 23 10 44 12 45 16.00 RECPLANT 23 39 46.07 108 00 109 67 114 93 124 71 80 94 71.59 RECPLANT 71.59 65 98 62 96 62 00 ** The Sources are divided into two different groups below: SO SRCGROUP STATION CAT3616A CAT3616B CAT3616C CAT3616D CAT3616E CAT3616F SO SRCGROUP STATION CAT3616G CAT3616H SO SRCGROUP STATION GLYBOILA GLYBOILB PRIMCRUS RECLAIM PROPLANT RECPLANT SO SRCGROUP OPENPIT KOALAP FOXP LESLIEP PKDUMP ROMSTOCK ** PLINE1-PLINE56 KLINE1-KLINE24 ** SO SRCGROUP FUGITIVE PKDUMP ROMSTOCK ROMLIN1-ROMLIN4 MLINE1-MLINE68 SO FINISHED ** Details for the REceptor grid are provided below RE STARTING ** A total of 498 discrete receptors will be used. RE DISCCART -2500. -2500 457 RE DISCCART -2500. -2000. 456. RE DISCCART -2500. -1500 456 RE DISCCART -2500. -1000 453 RE DISCCART -2500. -750 453 RE DISCCART -2500. -500 459 RE DISCCART -2500. -400. 468 RE DISCCART -2500 -300 468 RE DISCCART -2500 -200 467 RE DISCCART -2500 -100 466 100 467 RE DISCCART -2500 RE DISCCART -2500 200 468. RE DISCCART -2500 300. 473 RE DISCCART -2500. 400. 475. RE DISCCART -2500. 500, 478, RE DISCCART -2500. 750 485 RE DISCCART -2500. 1000 485.

RE	DISCCART	-2500.	1500	
RE	DISCCART	-2500	2000.	501.
RE	DISCCART	-2500	2500.	501.
RE	DISCCART	-2000	-2500.	455
RE	DISCCART	-2000.	-2000	458
RE	DISCCART	-2000	-1500.	457.
RE	DISCCART	-2000	-1000	453.
RE	DISCCART	-2000	-750	450.
RE	DISCCART	-2000	-500	448.
RE	DISCCART	-2000	-400.	448
RE	DISCCART		-300.	448
RE	DISCCART	-	-200	448
RE	DISCCART		-100	451
RE	DISCCART	-2000.	100	
RE	DISCCART	-2000.	200.	464
RE	DISCCART	-2000.	300	465
RE	DISCCART	-2000.	400	469
$\mathbf{RE}$	DISCCART	-2000.	500	473.
RE	DISCCART	-2000.	750	480
RE	DISCCART	-2000.	1000	478
RE	DISCCART	-2000.	1500	492
RE	DISCCART	-2000.	2000	494
RE	DISCCART		2500	505
RE	DISCCART		-2500	448
RE	DISCCART		-2000	452.
RE	DISCCART	-1500	-1500.	455.
RE				
	DISCCART	-1500.	-1000	460
RE	DISCCART	-1500.	-750	454
RE	DISCCART	-1500	-500	454.
RE	DISCCART	-1500.		454
RE	DISCCART	-1500.	-300	454
RE	DISCCART	-1500.	-200	454
RE	DISCCART	-1500	-100.	454.
$\mathbf{RE}$	DISCCART	-1500	100.	454.
$\mathbf{RE}$	DISCCART	-1500	200.	454.
RE	DISCCART	-1500	300.	456.
RE	DISCCART	-1500	400.	463.
RE	DISCCART	-1500.	500	467
RE	DISCCART	-1500.	750	477
RE	DISCCART	-1500.	1000	477
RE	DISCCART	-1500.	1500	487.
RE	DISCCART	-1500	2000.	487.
RE	DISCCART	-1500.	2500.	497
RE	DISCCART	-1000	-2500	448
		-1000		
RE	DISCCART		-2000	448
RE	DISCCART	-1000	-1500	453
RE	DISCCART	-1000	-1000	453
RE	DISCCART	-1000	-750	453
RE	DISCCART	-1000	-500.	453.
RE	DISCCART	-1000.	-400.	453.
RE	DISCCART	-1000.	-300.	456.
$\mathbf{RE}$	DISCCART	-1000.	-200	455
RE	DISCCART	-1000	-100	455
RE	DISCCART	-1000	100	454

RE	DISCCART	-1000	200.	454.
RE	DISCCART	-1000	300.	454.
RE	DISCCART	-1000	400	454.
RE	DISCCART	-1000.	500	455
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000	1000	479.
RE	DISCCART	-1000.	1500	482
RE	DISCCART	-1000.	2000	484
RE	DISCCART	-1000.	2500	497
RE	DISCCART	-750.	-2500	448
RE	DISCCART	-750.	-2000	448
RE	DISCCART	-750.	-1500	454.
RE	DISCCART	-750.	-1000.	456.
RE	DISCCART	-750.	-750	455
RE	DISCCART	-750.	-500	456
RE	DISCCART	-750	-400	457
RE	DISCCART	-750	-300.	460.
RE	DISCCART	-750	-200.	458
RE	DISCCART	-750	-100.	460
RE	DISCCART	-750	100.	454
RE	DISCCART	-750	200.	454.
RE	DISCCART	-750	300.	454.
RE	DISCCART	-750	400	455.
RE	DISCCART	-750	500,	457.
RE	DISCCART	-750	750	458.
RE	DISCCART	-750	1000	474.
RE	DISCCART	-750	1500	487
RE	DISCCART	-750	2000	487.
RE	DISCCART	-750	2500	499
RE	DISCCART	-500.	-2500	448
RE	DISCCART	-500	-2000	448
RE	DISCCART	-500	-1500	457
RE	DISCCART	-500	-1000	466
RE	DISCCART	-500	-750.	457.
RE	DISCCART	-500.	-500.	457
RE	DISCCART	-500.	-400	457
RE	DISCCART	-500	-300	457.
RE	DISCCART	-500	-200	456
RE	DISCCART	-500	-100.	455
RE	DISCCART	-500	100.	454.
RE	DISCCART	-500.	200.	454.
RE	DISCCART	-500.	300.	454.
RE	DISCCART	-500.	400	454.
RE	DISCCART	-500.	500	455
RE	DISCCART	-500.	750	455
RE	DISCCART	-500	1000	463
RE	DISCCART	-500	1500	484
RE	DISCCART	-500	2000.	485.
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RE	DISCCART	-400. -400	-2000	440. 450
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RE	DISCCART	-400 -400	-1000	465 457
	DISCCART	-400 -400	-1000	457 457
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RE	DISCCART	-400	-500	457.
RE	DISCCART	-400	-400	457.
RE	DISCCART	-400	-300.	455
$\mathbf{RE}$	DISCCART	-400.	-200	455
$\mathbf{RE}$	DISCCART	-400.	-100	455.
$\mathbf{RE}$	DISCCART	-400	100	454
RE	DISCCART	-400.	200.	454
RE	DISCCART	-400.	300	454
RE	DISCCART	-400.	400	454
$\mathbf{RE}$	DISCCART	-400.	500.	454
RE	DISCCART	-400	750	457.
RE	DISCCART	-400	1000.	463.
RE	DISCCART	-400	1500.	475.
RE	DISCCART	~400	2000	485
RE	DISCCART	-400.	2500	499.
RE	DISCCART	-300	-2500	448.
RE	DISCCART	-300	-2000.	457
RE	DISCCART	-300.	-1500	467
RE	DISCCART	-300	-1000	458
RE	DISCCART	-300	-750	458
RE	DISCCART	-300	-500	462.
RE	DISCCART	-300	-400	459
RE	DISCCART	-300.	-300.	455
RE	DISCCART	-300	-200	454
RE	DISCCART	-300.	-100	454
RE	DISCCART	-300.	100	454
RE	DISCCART	-300.	200	454
RE	DISCCART	-300.	300	454
RE	DISCCART	-300.	400.	454
RE	DISCCART	-300.	500	454
RE	DISCCART	-300.	750	462
RE	DISCCART	-300.	1000	466
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RE	DISCCART	-300.	2000	487
RE	DISCCART	-300.	2500	495
RE	DISCCART	-200.	-2500	448.
RE	DISCCART	-200.	-2000.	462.
RE	DISCCART	-200	-1500.	467
RE	DISCCART	-200	-1000.	461
RE	DISCCART	-200.	-750	462
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RE	DISCCART	200	2500.	476.
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RE	DISCCART	300	-1000.	482.
RE	DISCCART	300	-750	483.
RE	DISCCART	300	-500	477
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RE	DISCCART	300	-300	476
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RE	DISCCART	300.	300	467
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RE	DISCCART	300	500	457
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		300.		454.
RE	DISCCART	300.	1000	462.
RE	DISCCART	300	1500	476.
RE	DISCCART	300	2000.	477
RE	DISCCART	300	2500.	474
RE	DISCCART	400	-2500	457
RE	DISCCART	400	-2000.	469.
$\mathbf{RE}$	DISCCART	400	-1500	475.
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RE	DISCCART	400	-200.	469
$\mathbf{RE}$	DISCCART	400	-100	468
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RE	DISCCART	400	200	468
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RE	DISCCART	400	500	455
RE	DISCCART	400	750	454
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RE	DISCCART	500	-2000	462 468
RE	DISCCART	500		
			-1500	478
RE	DISCCART	500.	-1000	487
RE	DISCCART	500	-750	486
RE	DISCCART	500	-500.	478
RE	DISCCART	500	-400	479

RE	DISCCART	500	200	401
RE		500.	-300	481.
RE	DISCCART	500.	-200	481. 477
	DISCCART	500	-100	
RE	DISCCART	500	100	473.
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RE	DISCCART	500	300	465
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RE	DISCCART	500	750	454.
RE	DISCCART	500	1000.	454
RE	DISCCART	500.	1500.	471
RE	DISCCART	500.	2000	472
RE	DISCCART	500	2500	472
RE	DISCCART	750	-2500	462
RE	DISCCART	750	-2000	474.
RE	DISCCART	750	-1500.	483
RE	DISCCART	750	-1000	493.
RE	DISCCART	750	-750	488
RE	DISCCART	750	-500.	494
RE	DISCCART	750	-400.	494
RE	DISCCART	750	-300	487
$\mathbf{RE}$	DISCCART	750.	-200	487
$\mathbf{RE}$	DISCCART	750.	-100	484.
RE	DISCCART	750	100.	482
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RE	DISCCART	750.	400	472
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RE	DISCCART	750	750	458.
RE	DISCCART	750	1000.	454
RE	DISCCART	750	1500.	457
$\mathbf{RE}$	DISCCART	750	2000	464
RE	DISCCART	750	2500	473
RE	DISCCART	1000	-2500.	464.
RE	DISCCART	1000	-2000	480
RE	DISCCART	1000	-1500	482
RE	DISCCART	1000.	-1000	501
RE	DISCCART	1000	-750	490
RE	DISCCART	1000	-500	493
RE	DISCCART	1000	-400.	493
RE	DISCCART	1000.	-300	493
RE	DISCCART	1000	-200	484
RE	DISCCART	1000	-100	483
RE	DISCCART	1000	100	483
RE	DISCCART	1000	200	481.
RE	DISCCART	1000	300.	477
RE	DISCCART	1000.	400	476
RE	DISCCART	1.000	500.	472
RE	DISCCART	1000.	750.	467
RE	DISCCART	1000	1000	463
RE	DISCCART	1000	1500	456.
RE	DISCCART	1000	2000	466.
RE	DISCCART	1000	2500	483.
RE	DISCCART	1500	-2500.	455.
		7000	2000.	199.

RE	DISCCART	1500	-2000.	473.
RE		1500	-1500	
RE	DISCCART	1500	-1000	487
RE	DISCCART	1500.	-750	492.
RE	DISCCART	1500	-500.	487.
RE	DISCCART	1500.	-400.	487
RE	DISCCART	1500.	-300	486
RE	DISCCART	1500.	-200	485
RE	DISCCART	1500.	-100.	483
RE	DISCCART	1500.	100	483
$\mathbf{RE}$	DISCCART	1500	200	483,
$\mathbf{RE}$	DISCCART	1500	300	483
RE	DISCCART	1500	400	483
RE	DISCCART	1500	500	483
$\mathbf{RE}$	DISCCART	1500	750	483.
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RE	DISCCART	1500.	2000	464
RE	DISCCART	1500.	2500	475
RE	DISCCART	2000	-2500	454.
RE	DISCCART	2000	-2000.	468
RE	DISCCART	2000	-1500.	473
RE	DISCCART	2000	-1000.	485.
RE	DISCCART	2000.	-750	493
RE	DISCCART	2000.	-500	493
RE	DISCCART	2000	-400	489
RE	DISCCART	2000	-300	486.
RE	DISCCART	2000	-200.	484
RE	DISCCART	2000	-100	486
RE	DISCCART	2000	100	486
RE	DISCCART	2000	200	487.
RE	DISCCART	2000.	300	487
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RE	DISCCART	2000.	750	492
RE	DISCCART	2000.	1000	487
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RE	DISCCART	2000.	2000. 2500	465
RE	DISCCART	2000. 2500	-2500	454
RE	DISCCART	2500.	-2000	473
RE	DISCCART	2500.	-1500	468
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RE		2500	-1000.	483.
RE	DISCCART	2500	-750	484
RE		2500	-500.	484
RE	DISCCART	2500.	-400	484
RE		2500.	-300	484
RE	DISCCART	2500.	-200	484
RE	DISCCART	2500	-100	484
RE	DISCCART	2500	100	489
RE	DISCCART	2500	200	494
RE	DISCCART	2500	300	497
RE	DISCCART	2500	400	497.
RE	DISCCART	2500	500	497.

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RE	DISCCART	2500	750. 4	
RE	DISCCART	2500	1000. 4	
RE	DISCCART	2500		34.
RE	DISCCART	2500		73
RE	DISCCART	2500		58.
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RE	DISCCART	0	-10000	475
RE	DISCCART	0	10000	475
RE	DISCCART	-10000.	10000	475.
RE	DISCCART	-10000	-10000	475.
RE	DISCCART	15000	15000	475
RE	DISCCART	15000.	-15000	475
RE	DISCCART	0	-15000	475
RE	DISCCART	0	15000	475.
RE	DISCCART	15000	0	475.
RE	DISCCART	-15000.	Ο.	475
RE	DISCCART	-15000	15000	475
RE	DISCCART	-15000	-15000	475
RE	DISCCART	0	-17500	475
RE	DISCCART	5000	-17500.	475.
RE	DISCCART	10000	-17500.	475.
RE	DISCCART	15000	-17500.	475
RE	DISCCART	-5000	-17500.	
RE	DISCCART	-10000.	-17500	
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RE	DISCCART	20000	20000.	
RE	DISCCART	20000	-20000.	475,
RE	DISCCART	20000	-20000.	475
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RE	DISCCART	-20000	20000	475
RE	DISCCART	-20000	-20000	475
RE	DISCCART	2500.	-20000	475.
RE				475.
RE	DISCCART	2500	-7500.	475.
	DISCCART	2500.	-10000.	
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RE	DISCCART	2500.	-15000	475.
RE	DISCCART	2500.	-17500	475.
RE	DISCCART	2500.	-20000.	475
RE	DISCCART	-5000.	-2500	475
RE	DISCCART	10000	-2500	475.
RE	DISCCART	15000	-2500	475.
RE	DISCCART	20000.	-2500	475.
RE	DISCCART	-15000	20000	475.
RE	DISCCART	-10000.	20000	475.
RE	DISCCART	-5000.	20000	475.
RE	DISCCART	5000.	20000.	475.
RE	DISCCART	10000.	20000	475.
RE	DISCCART	15000	20000	475.
RE	DISCCART	-20000	15000	475.
RE	DISCCART	-10000	15000	475.
RE	DISCCART	-5000	15000	475.
RE	DISCCART	5000	15000.	475
RE	DISCCART	10000.	15000.	475.

RE	DISCCART	20000	15000	475.
RE	DISCCART	-20000	10000	475
RE	DISCCART	-15000	10000	475
RE	DISCCART	-5000	10000.	475
RE	DISCCART	5000.	10000.	475
RE	DISCCART	15000	10000	475.
RE	DISCCART	20000.	10000	475
RE	DISCCART	-20000.	5000	475
RE	DISCCART	-15000.	5000.	475
$\mathbf{RE}$	DISCCART	-10000	5000	475
RE	DISCCART	-5000	5000	475
RE	DISCCART	0	5000	475
RE	DISCCART	5000	5000	475.
$\mathbf{RE}$	DISCCART	10000	5000	475.
RE	DISCCART	15000.	5000	475
RE	DISCCART	20000	5000	475.
RE	DISCCART	-20000	Ο.	475
$\mathbf{RE}$	DISCCART	-10000	0.	475
RE	DISCCART	-5000	0	475
RE	DISCCART	5000	0.	475.
RE	DISCCART	10000	0.	475.
RE	DISCCART	20000	0.	475
RE	DISCCART	-20000	-5000.	475
RE	DISCCART	-15000	-5000.	475
$\mathbf{RE}$	DISCCART	-10000	-5000.	475
$\mathbf{RE}$	DISCCART	-5000	-5000.	475
RE	DISCCART	0.	-5000.	475
RE	DISCCART	5000	-5000	475.
RE	DISCCART	10000	-5000.	475
RE	DISCCART	15000.	-5000	475
RE	DISCCART	20000	-5000	475
RE	DISCCART	-20000	-10000	475.
$\mathbf{RE}$	DISCCART	-15000	-10000	475
$\mathbf{RE}$	DISCCART	-5000	-10000	475
$\mathbf{RE}$	DISCCART	5000	-10000.	475
$\mathbf{RE}$	DISCCART	15000.	-10000.	475
RE	DISCCART	20000.	-10000.	475
RE	DISCCART	-20000	-15000	475
RE	DISCCART	-10000	-15000	475
$\mathbf{RE}$	DISCCART	-5000	-15000	475.
RE	DISCCART	5000	-15000	475
RE	DISCCART	10000	~15000	475
$\mathbf{RE}$	DISCCART	20000	-15000	475
$\mathbf{RE}$	DISCCART	-15000	-20000.	475.
RE	DISCCART	-10000	-20000.	475
RE	DISCCART	-5000	-20000.	475.
RE	DISCCART	5000.	-20000.	475
RE	DISCCART	10000	-20000.	475
RE	DISCCART	15000	-20000	475
RE	FINISHED			

** The MEteorology pathway begins here ME STARTING

** There are no on-site upper air data available, so assumed mixing heights

## **APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE**

```
** were used. The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model
   INPUTFIL ISCST294 DAT
   ANEMHGHT 10 METERS
   SURFDATA 94823 1994 KOALCAMP
   UAIRDATA 94823 1994 NOTAVAIL
   STARTEND 94 01 01 94 12 31
  DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
   WDROTATE 180
ME FINISHED
** The OUtput pathway begins here.
OU STARTING
** RECTABLE will o/p high value summary for each receptor
   RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
   MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the acceptable Cdn Ambient Air Qual Objective
   MAXIFILE 24 STATION 120.0
**
                                  MAXITSP FIL 21
    MAXIFILE 24 OPENPIT 120 0 MAXITSP FIL 21
**
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
** PLOTFILE 24 STATION K007dTSP FST 22
** PLOTFILE 24 OPENPIT K007dTSP FST 22
   PLOTFILE PERIOD STATION K2007TSP FST 23
   PLOTFILE PERIOD OPENPIT K2007TSP FST 23
OU FINISHED
```

```
**Project No. 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is NOx-NO2
**
** All met data is from the Koala Camp Weather Station
** To run the model type:
**
**
      ISCST2EM K2007NO2 INP K2007NO2.OUT
**
** The results for this problem are provided in file K2007NO2 OUT
**
**NOTE: THE STACK HEIGHT FOR THE DIESEL POWER PLANT STACKS HAS BEEN
** INCREASED FROM 16.9 M TO 22 9 M THE FUEL FOR THE DIESEL POWER STATION
**
   CONTAINS 0 05 WT % SULPHUR
                                THE EVENTS PROCESSOR WILL BE USED FOR THIS
** MODEL ITERATION
                     THE DIESEL GENERATORS @ 70% OF FULL LOAD WILL BE USED
** TO PLOT 24-HOUR AND 7,416 HOUR NO2 CONCENTRATIONS THE DIESEL POWER
** PLANT EMISSION RATES HAVE BEEN INCREASED BY 15% TO ACCOUNT FOR ENGINE
** TO ENGINE VARIABILITY AND TEST VARIABILITY.
**
**
** The Control parameters for this model run are as follows:
CO STARTING
   TITLEONE BHP NWT Diamonds NOx-NO2
  MODELOPT DFAULT RURAL
                           CONC
            1 24 PERIOD
   AVERTIME
   POLLUTID
            NOx
   TERRHGTS
            ELEV
   ELEVUNIT
            METERS
   RUNORNOT
            RUN
** EVENTFIL EVE24NOX INP
                          DETATL
   ERRORFIL
            ERRORNOX.OUT
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
** The diesel power plant will operate at 70% of full load for 24 h/day
** The emission rates have already been adjusted, so use a emission
** factor of 1 0.
SO LOCATION CAT3616A POINT
                               43.0
                                       45.0
                                               466.0
SO EMISFACT CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                               43 0
                                       51.0
                                               466 0
SO EMISFACT CAT3616B HROFDY 24*1 0
SO LOCATION CAT3616C POINT
                               43 0
                                       57.0
                                               466 0
SO EMISFACT CAT3616C HROFDY 24*1.0
SO LOCATION CAT3616D POINT
                               43 0
                                       63 0
                                               466.0
SO EMISFACT CAT3616D HROFDY 24*1 0
SO LOCATION CAT3616E POINT
                               43 0
                                       69 0
                                               466 0
SO EMISFACT CAT3616E HROFDY
                              24*1 0
                               43 0
SO LOCATION CAT3616F POINT
                                       75 0
                                               466 0
SO EMISFACT CAT3616F HROFDY 24*1.0
SO LOCATION CAT3616G POINT
                               43 0
                                       81 0
                                               466 0
SO EMISFACT CAT3616G HROFDY 24*1 0
                               43 0
                                       87 0
                                               466.0
SO LOCATION CAT3616H POINT
SO EMISFACT CAT3616H HROFDY 24*1 0
```

** The diesel fired heating boilers both operate Dec -Mar , one boiler operates ** Sept., Oct., Nov and Apr., no boiler operation May to August; ** adjust emission factors accordingly. Each boiler runs at avg 75% of full ** load SO LOCATION GLYBOILA POINT 12 0 -188 0 466.0 SO EMISFACT GLYBOILA MONTH 3*0 75 8*0 0 1*0 75 SO LOCATION GLYBOILB POINT -188.0 17 0 466 0 SO EMISFACT GLYBOILB MONTH 4*0 75 4*0.0 4*0.75 ** The diesel generators will use 0 05% wt sulfur fuel, the heating boilers ** by Cleaver Brooks will use No. 2 distillate fuel @ 0 2% wt sulfur, ** no emission estimates are avail for boilers using low sulfur fuel ** Point Sources QS HS TS vs DS ****** Parameters: - - - -_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ SO SRCPARAM CAT3616A 21 2 22 9 712. 20 2 0 9 SO SRCPARAM CAT3616B 21 2 22.9 712. 20 2 0 9 SO SRCPARAM CAT3616C 21 2 22 9 712 20 2 0 9 SO SRCPARAM CAT3616D 21.2 22 9 712. 20 2 0 9 22 9 712. SO SRCPARAM CAT3616E 21 2 20 2 0 9 SO SRCPARAM CAT3616F 21 2 22 9 712. 20.2 0.9 SO SRCPARAM CAT3616G 21 2 22.9 712 20 2 0.9 SO SRCPARAM CAT3616H 21 2 0.9 22.9 712 20 2 SO SRCPARAM GLYBOILA 0.29 11 5 433 70 06 SO SRCPARAM GLYBOILB 0 29 11 5 433, 7 0 0.6 Building heights and widths are input for calculation of building ** ** Building widths are input beginning with the 10 degree downwash ** flow vector and incrementing by 10 degrees clockwise BUILDHGT CAT3616A 36*13.9 0 0 BUILDWID CAT3616A 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.0 0.0 0.0 0.0 0 0 CAT3616A 0 0 0 0 3 00 3.05 3 19 3.46 3 92 4.67 6 00 CAT3616A 8 77 17.28 30 00 30 46 31 93 34 64 39 16 46.67 CAT3616A CAT3616A 60 00 54 27 51 79 51 00 BUILDHGT CAT3616B 36*13.9 0 0 BUILDWID CAT3616B 0 0 0.0 0 0 0 0 0 0 0 0 0 0 CAT3616B 0 0 0 0 0.0 0.0 0 0 0.0 0 0 0 0 9.00 9 14 9 58 10 39 11 75 14.00 18 00 CAT3616B 0.0 CAT3616B 26 31 30 46 30 00 30 46 31 93 34 64 39 16 46 67 CAT3616B 51 96 47 89 45 69 45 00 CAT3616C 36*13 9 BUILDHGT BUILDWID CAT3616C 0.0 0.0 0.0 0.0 0.0 0.0 0 0 0 0 0.0 0.0 0 0 0.0 0.0 0.0 0 0 0 0 CAT3616C 0 0 15 00 15 23 15.96 17.32 19.58 23 33 30 00 CAT3616C CAT3616C 31 93 30 46 30 00 30 46 31 93 34.64 39 16 46 67 CAT3616C 45.03 41 50 39 60 39 00 BUILDHGT CAT3616D 36*13 9 BUILDWID CAT3616D 0 0 0 0 0.0 0 0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0 0 0.0 0 0 CAT3616D 0.0 0.0 21.00 21.32 22.35 24 25 27 41 32.67 34 64 CAT3616D 0.0 31.93 30.46 30 00 30.46 31 93 34 64 39 16 43 08 CAT3616D CAT3616D 38 11 35 12 33 51 33 00 BUILDHGT CAT3616E 36*13.9 BUILDWID CAT3616E 0 0 0 0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 CAT3616E

## APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE

	CAT3616E 0 0 27.00 27.50 28 80 31.00 35.20 39.50 35 20 CAT3616E 32 40 31.00 30 50 31.00 32.70 35.70 40 00 35 40 CAT3616E 31 40 29 00 28 20 27.00
BUILDHGT	
BUILDWID	CAT3616F 0.0 0.0 0 0 0 0.0 0 0 0 0.0
DOIDDWID	CAT3616F 0.0 0.0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616F 0 0 33.00 33 50 35 20 38 30 42.80 39 50 35 00
	CAT3616F 32.20 30 80 30 60 31.00 32.50 35 30 33 30 28 10
	CAT3616F 24.80 22 90 21 90 21.00
BUILDHGT	CAT3616F 24.80 22 90 21 90 21.00 CAT3616G 36*13 9
BUILDWID	CAT3616G 0.0 0 0.0 0.0 0 0 0 0 0 0 0 0 0 0 0 0
BOIDDWID	CAT3616G 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616G 0 0 39.00 39.40 41 40 45 00 47 00 39.50 35.00
	CAT3616G 32.30 31 00 30.50 31 00 32 40 31 00 23.80 20.20
	CAT3616G 18 00 16 60 15.80 15 00
BUILDHGT	CAT3616H 36*13 9
BUILDWID	CAT3616H 0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DOTIDATD	CAT3616H 0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616H 0.0 45.00 45 40 47.50 51 50 47.00 39 50 35 00
	CAT3616H 32 40 31 00 30 40 31 00 28.50 19 50 15 20 12 70
	CAT3616H 32 40 31 00 30 40 31 00 28.50 19 50 15 20 12 70 CAT3616H 11 40 10.50 10 00 9 00
BUILDHGT	GLYBOILA 36*8 5
BUILDHUID	GLYBOILA 2 03 2.13 2 31 2.61 3 11 4 00 5 85 11 52
BOILDWID	GLYBOILA 21.00 21 32 22 35 14.00 10 89 9 14 8 08 7 45
	GLYBOILA 7 11 7 00 7 11 7.45 8 08 9 14 10.89 14 00
	GLYBOILA 22 35 28.43 28 00 21.00 11.52 5.85 4.00 3.11
	GLYBOILA 22 55 28.45 28 00 21.00 11.52 5.85 4.00 3.11 GLYBOILA 2 61 2 31 2.13 2.00
BUILDHGT	
BUILDWID	GLYBOILB 2 03 2.13 2 31 2 61 3 11 4 00 5 85 11 52
BOIDDWID	GLYBOILB 16.00 16.25 17 03 14 00 10.89 9 14 8 08 7 45
	GLYBOILB 7 11 7.00 7 11 7.45 8.08 9 14 10.89 14 00
	GLYBOILB 22 35 33 51 33.00 21 00 11.52 5 85 4 00 3 11
	GLYBOILB 2.61 2.31 2 13 2 00
** The open	pits are also sources of NO2 emissions from mobile equipment
_	Koala Pit.
- ·	KOALAP AREA 400 200. 460.
	KOALAP 0 00000439 1.0 525.0
** Secondly	, Fox Pit
	FOXP AREA -40006300 442
SO SRCPARAM	FOXP 0.0000571 1 0 575.0
** Thirdly,	Leslie Pit.
SO LOCATION	LESLIEP AREA -23003800. 442
SO SRCPARAM	LESLIEP 0 0000282 1 0 800 0
** The Sour	ces are divided into three different groups below:
	STATION CAT3616A CAT3616B CAT3616C CAT3616D
SRCGROUP	STATION CAT3616E CAT3616F CAT3616G CAT3616H
SRCGROUP	STATION GLYBOILA GLYBOILB
SRCGROUP	OPENPIT KOALAP FOXP LESLIEP
SO FINISHED	
** Details f	or the REceptor grid are provided below

RE STARTI	NG					
		8 discrete	receptors	wi]]	he	naeq
RE DISCCA		002500	—	****	20	uscu
		00 -2000				
		00 -1500				
		00 -1000				
		00 -1000 00 -750.				
		00500.				
		00300				
		00 -300				
		00 -300 00200.				
		00200. 00 -100				
		00 100				
		00 200				
		00. 300				
		00 400				
		00 500				
		00 750				
		00 1000				
		00 1500.				
		00. 2000				
		00 2500				
		00 -2500				
		002000				
		00, -1500.				
RE DISCCA	ART -20	001000	453			
RE DISCCA	ART -20	00 -750	450			
RE DISCCA	ART -20	00 -500	448			
		00 -400				
RE DISCCA	ART -20	00 -300	448.			
RE DISCCA	ART -20	00 -200.	448.			
		00 -100				
RE DISCCA	ART -20	00 100	466			
RE DISCCA	ART -20	00 200	464			
RE DISCCA	ART -20	00. 300.	465.			
RE DISCCA	ART -20	00 400	469			
RE DISCCA	ART -20	00 500	473			
RE DISCCA	ART -20	00 750	480.			
RE DISCCA	ART -20	00. 1000	478.			
RE DISCCA	ART -20	00. 1500.	492.			
RE DISCCA	ART -20	00 2000	494			
RE DISCCA	ART -20	00 2500	505			
RE DISCCA	ART -15	00 -2500	448			
RE DISCCA	ART -15	00 -2000	452			
RE DISCCA	ART -15	00 -1500	455			
RE DISCCA	ART -15	001000	. 460.			
RE DISCCA	ART -15	00 -750	. 454			
RE DISCCA	ART -15	00500	454			
RE DISCCA	ART -15	00400	454			
RE DISCCA	ART -15	00 -300	454			
RE DISCCA	ART -15	00200	. 454.			
RE DISCO	ART -15	00 -100	454.			
RE DISCCA			454.			
RE DISCCA			454.			

$\mathbf{RE}$	DISCCART	-1500	300.	456
RE	DISCCART	-1500	400.	463
RE	DISCCART	-1500.	500	467
RE	DISCCART	-1500.	750	477
RE	DISCCART	-1500.	1000	477
RE	DISCCART	-1500.	1500	487.
RE	DISCCART	-1500,	2000.	487
RE	DISCCART	-1500	2500.	497
RE	DISCCART	-1000,	-2500.	448
$\mathbf{RE}$	DISCCART	-1000	-2000.	448
RE	DISCCART	-1000	-1500	453
RE	DISCCART	-1000	-1000	453.
$\mathbf{RE}$	DISCCART	-1000	-750.	453.
RE	DISCCART	-1000.	-500	453.
RE	DISCCART	-1000	-400	453
$\mathbf{RE}$	DISCCART	-1000	-300.	456
$\mathbf{RE}$	DISCCART	-1000.	-200	455
RE	DISCCART	-1000.	-100	455
RE	DISCCART	-1000	100	454.
RE	DISCCART	-1000	200	454
RE	DISCCART	-1000	300.	454
RE	DISCCART	-1000.	400	454
RE	DISCCART		500	455
RE	DISCCART	-1000.	750	467
RE	DISCCART	-1000.	1000	479
RE	DISCCART	-1000.	1500	482.
RE	DISCCART		2000.	484
RE	DISCCART	-1000.	2500	497
RE	DISCCART	-750	-2500	448
RE	DISCCART	-750	-2000	448
RE	DISCCART	-750	-1500	454.
RE	DISCCART	-750	-1000	456.
RE	DISCCART	-750	-750	455
RE	DISCCART	-750	-500	456
RE	DISCCART	-750	-400	
RE	DISCCART	-750	-300.	460.
RE	DISCCART	-750	-200.	
RE	DISCCART	-750.	-100.	460
RE	DISCCART	-750	100.	454
RE	DISCCART	-750	200.	454.
RE	DISCCART	-750	300.	454.
RE	DISCCART	-750	400.	455
RE	DISCCART	-750.	500	457
RE	DISCCART	-750.	750	458.
RE	DISCCART	-750	1000.	474
RE	DISCCART	-750.	1500	487
RE	DISCCART	-750.	2000	487
RE	DISCCART	-750.	2500.	499.
RE	DISCCART	-500.	-2500.	448
RE	DISCCART	-500.	-2000	448
RE	DISCCART	-500	-1500.	457
RE	DISCCART	-500.	-1000	466
RE	DISCCART	-500.	-750	457
RE	DISCCART	-500.	-500	457
1713	PIDCOULI	500.	200	

RE	DISCCART	-500	-400	457
RE		-500	-300.	457
RE	DISCCART	-500	-200	456
$\mathbf{RE}$	DISCCART	-500	-100.	455
RE	DISCCART	-500	100.	454
$\mathbf{RE}$	DISCCART	-500.	200	454
RE	DISCCART	-500.	300	454.
$\mathbf{RE}$	DISCCART	-500.	400.	454
$\mathbf{RE}$	DISCCART	-500.	500.	455
RE	DISCCART	-500.	750	455
RE	DISCCART	-500.	1000	463
$\mathbf{RE}$	DISCCART	-500	1500	484
RE	DISCCART	-500	2000.	485
RE	DISCCART	-500.	2500	501
RE	DISCCART	-400.	-2500	448
RE	DISCCART	-400	-2000.	450
RE	DISCCART	-400	-1500.	465
RE	DISCCART	-400	-1000.	457
RE	DISCCART	-400	~750.	457.
RE	DISCCART	-400	-500	457.
RE	DISCCART	-400	-400	457.
RE	DISCCART	-400.	-300.	455.
RE		-400.	-200.	
RE	DISCCART	-400	~100.	
RE	DISCCART	-400	100	
RE	DISCCART	-400	200	
RE	DISCCART	-400	300.	
RE		-400.	400	454
RE		-400.	500.	454
RE		-400	750	457
RE		-400	1000	
RE		-400	1500.	
RE		-400	2000	
RE		-400	2500	
RE		-300	-2500	
RE		-300	-2000	
RE		-300	-1500.	
RE	DISCCART	-300	-1000	458
RE	DISCCART	-300	~750	458
RE	DISCCART	-300	-500	462
RE	DISCCART	-300	-400.	459
RE	DISCCART	-300	-300.	455
RE	DISCCART	-300	-200.	454.
RE	DISCCART	-300.	-200.	454.
RE	DISCCART	-300.	100.	454. 454.
	DISCCART		200	454. 454
RE		-300.		
RE	DISCCART	-300.	300 400	454. 454
RE	DISCCART	-300.		454
RE	DISCCART	-300	500	454.
RE	DISCCART	-300	750	462.
RE	DISCCART	-300	1000.	466.
RE	DISCCART	-300.	1500	468
RE	DISCCART	-300,	2000	487
$\mathbf{RE}$	DISCCART	-300	2500	495

RE	DISCCART	-200	-2500.	448
RE	DISCCART	-200	-2000.	462
RE	DISCCART	-200	-1500.	467
RE	DISCCART	-200	-1000.	461
RE	DISCCART	-200	-750.	462.
RE	DISCCART	-200	-500.	464.
RE	DISCCART	-200.	-400.	462.
RE	DISCCART	-200	-300	457
RE	DISCCART	-200	-200	456
$\mathbf{RE}$	DISCCART	-200	-100	457
$\mathbf{RE}$	DISCCART	-200	100	457
RE	DISCCART	-200	200.	457
RE	DISCCART	-200.	300	457
RE	DISCCART	-200	400	456
RE	DISCCART	-200	500	454
RE	DISCCART	-200	750	460
RE	DISCCART	-200.	1000	465
RE	DISCCART	-200.	1500	470
RE	DISCCART	-200	2000	482
RE	DISCCART	-200	2500	490.
RE	DISCCART	-100	-2500.	448.
RE	DISCCART	-100	-2000	458
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100	-1000	464
RE	DISCCART	-100	-750	467
RE	DISCCART	-100	-500.	463.
RE	DISCCART	-100.	-400	463
RE	DISCCART	-100	-300	457
RE	DISCCART	-100	-200	457
RE	DISCCART	-100	-100	457
RE	DISCCART	-100	100.	457.
RE	DISCCART	-100	200	458
RE	DISCCART	-100	300	458
RE	DISCCART	-100	400.	
RE	DISCCART	-100.	500.	
RE	DISCCART	-100	750.	460.
RE	DISCCART	-100.	1000	463
RE	DISCCART	-100.	1500	470
RE	DISCCART	-100	2000	482
RE	DISCCART	-100	2500	483
RE	DISCCART	100.	-2500	448.
RE	DISCCART	100.	-2000.	458.
$\mathbf{RE}$	DISCCART	100	-1500.	468
$\mathbf{RE}$	DISCCART	100	-1000	476
RE	DISCCART	100	-750.	482
RE	DISCCART	100.	-500	474.
RE	DISCCART	100.	-400.	475.
RE	DISCCART	100	-300.	475
RE	DISCCART	100.	-200.	466.
RE	DISCCART	100	-100	466
RE	DISCCART	100	100	466
RE	DISCCART	100	200	466
RE	DISCCART	100	300	466
RE	DISCCART	100.	400	459
		200.		

RE	DISCCART	100	500	457.
$\mathbf{RE}$	DISCCART	100	750.	456
$\mathbf{RE}$	DISCCART	100	1000	470.
RE	DISCCART	100	1500.	476
RE	DISCCART	100.	2000	486
$\mathbf{RE}$	DISCCART	100	2500	478
$\mathbf{RE}$	DISCCART	200	-2500	448.
$\mathbf{RE}$	DISCCART	200	-2000	458
RE	DISCCART	200	-1500.	468
$\mathbf{RE}$	DISCCART	200	-1000	477
$\mathbf{RE}$	DISCCART	200	-750	480
$\mathbf{RE}$	DISCCART	200	-500	478.
RE	DISCCART	200.	-400	477
RE	DISCCART	200.	-300	477
RE	DISCCART	200	-200	470
RE	DISCCART	200	-100	470
RE	DISCCART	200	100	470.
RE	DISCCART	200.	200.	470
RE	DISCCART	200	300	468
RE	DISCCART	200	400	462
RE	DISCCART	200	500	457
RE	DISCCART	200	750	455.
RE	DISCCART	200.	1000	465
RE	DISCCART	200	1500	474
RE	DISCCART	200	2000	483
RE	DISCCART	200	2500	476
RE	DISCCART	300	-2500	452
RE	DISCCART	300	-2000	468
RE	DISCCART	300	-1500	473.
RE	DISCCART	300.	-1000	482
RE	DISCCART	300.	-750	483
RE	DISCCART	300	-500	477
RE	DISCCART	300	-400	477
RE	DISCCART		-300,	476.
RE	DISCCART	300. 300	-200	474
RE	DISCCART	300	-100	475
	DISCCART			473
RE		300	100	
RE	DISCCART	300.	200. 300.	470.
RE	DISCCART	300.		467.
RE	DISCCART	300.	400	463
RE	DISCCART	300.	500	457
RE	DISCCART	300	750	454
RE	DISCCART	300	1000	462
RE	DISCCART	300	1500	476
RE	DISCCART	300	2000	477
RE	DISCCART	300.	2500.	474.
RE	DISCCART	400	-2500	457
RE	DISCCART	400	-2000	469
RE	DISCCART	400	-1500	475
RE	DISCCART	400	-1000.	486
RE	DISCCART	400.	-750	486
RE	DISCCART	400.	-500.	477.
RE	DISCCART	400.	-400	476.
RE	DISCCART	400.	-300.	473.

DБ	DICCONDU	400	-200	469
RE RE	DISCCART DISCCART	400	-100	468.
	DISCCART	400	100	468
RE				
RE	DISCCART	400	200.	468.
RE	DISCCART	400.	300.	465
RE	DISCCART	400.	400	462
RE	DISCCART	400.	500	455
RE	DISCCART	400.	750.	454.
RE	DISCCART	400.	1000.	454
RE	DISCCART	400.	1500.	468
RE	DISCCART	400.	2000	473
RE	DISCCART	400.	2500	473
RE	DISCCART	500	-2500	462
RE	DISCCART	500	-2000	468.
RE	DISCCART	500.	-1500.	478
RE	DISCCART	500.	-1000	487
RE	DISCCART	500.	-750	486
RE	DISCCART	500.	-500	478
RE	DISCCART	500	-400.	479
RE	DISCCART	500	-300	481
RE	DISCCART	500	-200	481
RE	DISCCART	500	-100	477
RE	DISCCART	500.	100	473
RE	DISCCART	500.	200	468
RE	DISCCART	500.	300	465.
RE	DISCCART	500.	400.	457.
RE	DISCCART	500.	500	454
RE	DISCCART	500.	750	454
RE	DISCCART	500.	1000	454
RE	DISCCART	500.	1500	471
RE	DISCCART	500.	2000	472
RE	DISCCART	500	2500	472
RE	DISCCART	750	-2500	462
RE	DISCCART	750	-2000	474
RE	DISCCART	750	-1500	483
RE	DISCCART	750	-1000	493
RE	DISCCART	750.	-750.	488.
RE	DISCCART	750.	-500.	494.
RE	DISCCART	750	-400	494
RE	DISCCART	750	-300	487
RE	DISCCART	750	-200	487
RE	DISCCART	750	-100	484
RE	DISCCART	750.	100,	482
RE	DISCCART	750.	200.	477.
RE		750.	300.	474.
RE		750.	400.	472
RE		750	500	465
RE		750	750	458
RE		750	1000	454
RE		750	1500	457
RE		750.	2000	464
RE		750	2500.	473.
RE		1000	-2500.	464.
RE		1000.	-2000.	480
K IS	DISCORT	T000.	-2000.	700

RE	DISCCART	1000	-1500.	482.
RE	DISCCART	1000.	-1000.	501.
RE	DISCCART	1000.	-750	490.
RE	DISCCART	1000	-500	493.
RE	DISCCART	1000	-400	493.
RE	DISCCART	1000	-300,	493.
			-200	484.
RE	DISCCART	1000.		
RE	DISCCART	1000	-100	483
RE	DISCCART	1000	100	483
RE	DISCCART	1000	200.	481.
RE	DISCCART	1000.	300	477.
RE	DISCCART	1000	400	476
RE	DISCCART	1000	500	472.
RE	DISCCART	1000	750	467
RE	DISCCART	1000	1000.	463.
RE	DISCCART	1000.	1500.	456.
RE	DISCCART	1000	2000.	466
RE	DISCCART	1000	2500	483
RE	DISCCART	1500	-2500	455
RE	DISCCART	1500	-2000	473.
RE	DISCCART	1500	-1500	481
RE	DISCCART	1500	-1000	487
RE	DISCCART	1500	-750	492
RE	DISCCART	1500.	-500	487
RE	DISCCART	1500.	-400	487
RE	DISCCART	1500.	-300.	486.
RE	DISCCART	1500.	-200	485
RE	DISCCART	1500.	-100	483
RE	DISCCART	1500.	100	483
RE	DISCCART	1500	200	483
RE	DISCCART	1500.	300.	483.
RE	DISCCART	1500	400	483
RE	DISCCART	1500	500	483
RE	DISCCART	1500	750	483
RE	DISCCART	1500.	1000	476
RE	DISCCART	1500	1500	468.
RE	DISCCART	1500	2000.	464.
RE	DISCCART	1500	2500	475
RE	DISCCART	2000.	-2500	454
RE	DISCCART	2000.	-2000	468
RE	DISCCART	2000	-1500	473
RE	DISCCART	2000	-1000	485
RE	DISCCART	2000.	-750	493
RE	DISCCART	2000	-500	493.
RE	DISCCART	2000	-400	489
RE		2000	-300	486
RE	DISCCART	2000	-200	484
RE		2000.	-100	486.
RE		2000.	100	486
RE		2000	200.	487
RE		2000	300.	487.
RE		2000	400	487. 487
RE		2000	500	487
		2000	750.	492
RE	DISCCART	2000	750.	774

	DIAGADD		1000	
RE	DISCCART	2000.		
RE	DISCCART	2000.		
RE	DISCCART	2000.		
RE	DISCCART		2500	465
RE	DISCCART		-2500.	454.
RE	DISCCART	2500	-2000.	473
RE	DISCCART	2500	-1500.	468
RE	DISCCART	2500.	-1000.	483
RE	DISCCART	2500	-750.	484
RE	DISCCART	2500	-500.	484
RE	DISCCART			
RE	DISCCART			484.
RE	DISCCART			
RE	DISCCART		-100	
RE	DISCCART		100	
	DISCCART		200.	
RE				
RE	DISCCART		300	
RE	DISCCART		400	
RE	DISCCART		500	
RE	DISCCART		750	
$\mathbf{RE}$	DISCCART	2500	1000	493.
RE	DISCCART	2500	1500	484
$\mathbf{RE}$	DISCCART	2500	2000	473
RE	DISCCART	2500	2500	468
RE	DISCCART	10000	10000	) 475
RE	DISCCART	10000	-10000	) 475
RE	DISCCART	0	-10000	). 475.
RE	DISCCART	Ο.	10000	). 475.
RE	DISCCART			). 475.
RE	DISCCART			
RE	DISCCART			) 475.
RE	DISCCART			). 475.
RE	DISCCART	0		). 475
RE	DISCCART	0	15000	
RE	DISCCART			) 475
	DISCCART			) 475
RE	DISCCART	-15000.	15000	
RE	DISCCART	-15000.	-15000	
RE	DISCCART	0.	-17500	
RE	DISCCART	5000	-17500	) 475
RE	DISCCART	10000	-17500	) 475
RE	DISCCART	15000	-17500	) 475
RE	DISCCART	-5000	-17500	), 475
RE	DISCCART	-10000.	-17500	). 475.
RE	DISCCART	-15000	-1750	0. 475
RE	DISCCART	20000	2000	0. 475
RE	DISCCART	20000	-2000	
RE	DISCCART	0	-2000	
RE	DISCCART	ů.	2000	
RE	DISCCART	-20000	2000	
RE	DISCCART	-20000	-20000	
RE	DISCCART	2500	-5000	
			-7500	
RE	DISCCART	2500.	-1000	
RE	DISCCART	2500	-10000	0. 475.

	DIAGOND	0 - 0 0	10500	485
RE	DISCCART	2500	-12500.	475.
RE	DISCCART	2500.	-15000	475
RE	DISCCART	2500.	-17500	475
RE	DISCCART	2500	-20000	475
RE	DISCCART	-5000	-2500.	475
RE	DISCCART	10000	-2500.	475
RE	DISCCART	15000	-2500	475.
RE	DISCCART	20000.	-2500.	475.
RE	DISCCART	-15000.	20000.	475
RE	DISCCART	-10000.	20000.	475
RE	DISCCART	-5000.	20000.	475
RE	DISCCART	5000	20000	475
RE	DISCCART	10000	20000	475
RE	DISCCART	15000	20000	475.
RE	DISCCART	-20000	15000	475.
RE	DISCCART		15000	475.
		-10000		
RE	DISCCART	-5000	15000	475.
RE	DISCCART	5000	15000	475.
RE	DISCCART	10000	15000.	475
RE	DISCCART	20000.	15000	475
RE	DISCCART	-20000.	10000	475
RE	DISCCART	-15000	10000	475
RE	DISCCART	-5000	10000	475
RE	DISCCART	5000	10000	475
RE	DISCCART	15000	10000.	475.
RE	DISCCART	20000	10000.	475
RE	DISCCART	-20000	5000.	475
RE	DISCCART	-15000.	5000	475
RE	DISCCART	-10000	5000.	475
RE	DISCCART	-5000	5000.	475
RE	DISCCART	0	5000.	475
RE	DISCCART	5000	5000.	475
RE	DISCCART	10000	5000.	475
RE	DISCCART	15000	5000.	475
RE	DISCCART	20000	5000.	
RE	DISCCART	-20000	0.	475.
RE	DISCCART	-10000	0.	475
RE	DISCCART	-5000.	0	475
RE	DISCCART	5000	0.	475
RE	DISCCART	10000	0.	475
RE	DISCCART	20000	0.	475
$\mathbf{RE}$	DISCCART	-20000	-5000.	475.
RE	DISCCART	-15000	-5000.	475
RE	DISCCART	-10000	-5000.	475
RE	DISCCART	-5000.	-5000	475
RE	DISCCART	Ο.	-5000	475
RE	DISCCART	5000	-5000	475
RE	DISCCART	10000	-5000	475
RE	DISCCART	15000	-5000	475
RE	DISCCART	20000.	-5000	475.
RE	DISCCART	-20000.	-10000	475.
RE	DISCCART	-15000.	-10000.	475.
RE	DISCCART	-5000.	-10000.	475.
RE	DISCCART		-10000.	475. 475
RE	DISCORT	5000.	-10000	4/3

```
RE DISCCART 15000. -10000
                            475
RE DISCCART 20000. -10000. 475
RE DISCCART -20000. -15000. 475
RE DISCCART -10000. -15000
                            475
RE DISCCART -5000 -15000, 475.
RE DISCCART
             5000 -15000. 475.
RE DISCCART 10000 -15000
                            475
RE DISCCART 20000 -15000. 475
RE DISCCART -15000. -20000 475
RE DISCCART -10000. -20000
                            475
RE DISCCART -5000 -20000
                            475
             5000 -20000 475.
RE DISCCART
RE DISCCART 10000 -20000. 475
RE DISCCART 15000. -20000
                            475
RE FINISHED
** The MEteorology pathway begins here.
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model
  INPUTFIL ISCST294 DAT
  ANEMHGHT 10 METERS
  SURFDATA 94823 1994 KOALCAMP
  UAIRDATA 94823 1994 NOTAVAIL
   STARTEND 94 01 01 94 12 31
  DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
  WDROTATE 180
ME FINISHED
** The EVent pathway begins here
**EV STARTING
**
     EVENTPER HIGHNOX 24 PWRPLANT 94030624
**
      EVENTLOC 300 0 -750.0 483 0
**EV FINISHED
** The OUtput pathway begins here
OU STARTING
** RECTABLE will o/p high value summary for each receptor
   RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
  MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn. Ambient Air Qual Objective for
** nitrogen dioxide 24-hour is 200 ug/Nm^3 (acceptable)
  MAXIFILE 24 STATION 200.0 MAX24NOX.FIL 22
  MAXIFILE 24 OPENPIT 200.0 MAX24NOX FIL 22
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows
   PLOTFILE 1 STATION 1ST K2001NO1 FST 24
   PLOTFILE 1 OPENPIT 1ST K2001NO1 FST 24
```

PLOTFILE	24 ST	ATION 1ST	K2007NO2	.FST 25
PLOTFILE	24 OP	ENPIT 1ST	K2007NO2	.FST 25
PLOTFILE	PERIOD	STATION	K2007NO3	FST 26
PLOTFILE	PERIOD	OPENPIT	K2007NO3	FST 26
OU FINISHED				

```
**Project No. 4551 BHP Minerals Canada NWT Diamonds
**Modeller: Dan Jarratt, Rescan Environmental Services
**The contaminant being modelled is SO2
**
** All met data is from the Koala Camp Weather Station
** To run the model type:
**
      ISCST2EM K2007SO2 INP K2007SO2 OUT
**
**
** The results for this problem are provided in file K2007SO2 OUT.
**
**NOTE: THE DIESEL POWER PLANT STACK HEIGHT HAS BEEN INCREASED FROM
** 16 9 M TO 22.9 M THE FUEL FOR THE DIESEL POWER STATION CONTAINS
                      THE EVENTS PROCESSOR WILL NOT BE USED FOR THIS
** 0 05 WT % SULPHUR
** MODEL ITERATION. THE DIESEL GENERATORS @ 70% OF FULL LOAD WILL BE
** USED TO PLOT 24-HOUR AND 7,416 HOUR SO2 CONCENTRATIONS
**
** The COntrol parameters for this model run are as follows:
CO STARTING
  TITLEONE BHP NWT Diamonds SO2
  MODELOPT DFAULT RURAL CONC
            1 24 PERIOD
  AVERTIME
            SO2
  POLLUTID
  TERRHGTS
            ELEV
  ELEVUNIT
            METERS
  RUNORNOT
            RUN
            ERRORSO2 OUT
  ERRORFIL
CO FINISHED
** The SOurces included in this model run are as follows:
SO STARTING
SO LOCATION CAT3616A POINT
                               43 0
                                       45 0
                                               466 0
** The diesel power plant will operate at 70% of full load for 24 h/day.
**
   The emission rates have already been adjusted, so use an emission
** factor of 1 0.
SO EMISFACT
            CAT3616A HROFDY 24*1.0
SO LOCATION CAT3616B POINT
                               43 0
                                       51.0
                                               466 0
SO EMISFACT CAT3616B HROFDY 24*1.0
SO LOCATION CAT3616C POINT
                               43 0
                                       57.0
                                               466.0
SO EMISFACT CAT3616C HROFDY 24*1.0
SO LOCATION CAT3616D POINT
                               43 0
                                       63.0
                                               466.0
SO EMISFACT CAT3616D HROFDY
                              24*1 0
SO LOCATION CAT3616E POINT
                                       69 0
                                               466 0
                               43 0
SO EMISFACT CAT3616E HROFDY 24*1 0
                                       75 0
                                               466 0
SO LOCATION CAT3616F
                      POINT
                               43.0
SO EMISFACT CAT3616F
                      HROFDY 24*1 0
SO LOCATION CAT3616G
                      POINT
                               43.0
                                       81 0
                                               466 0
                               24*1 0
SO EMISFACT
            CAT3616G
                      HROFDY
                                       87 0
                                               466.0
SO LOCATION CAT3616H
                      POINT
                               43 0
SO EMISFACT CAT3616H HROFDY
                              24*1 0
**
    The diesel fired heating boilers both operate Dec -Mar., one boiler operates
**
    Sept , Oct , Nov. and Apr., no boiler operation May to August;
   adjust emission factors accordingly. Each boiler runs at avg 75% of full
**
```

## **APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE**

```
**
   load
          Assume Cleaver Brooks boilers
            GLYBOILA POINT
SO LOCATION
                               12 0 -188.0
                                               466.0
SO EMISFACT
            GLYBOILA
                      MONTH
                              3*0 75 8*0.0 1*0 75
SO LOCATION
            GLYBOILB POINT
                               17 0 -188 0
                                               466 0
SO EMISFACT
            GLYBOILB MONTH
                              4*0.75 4*0 0
                                              4*0 75
** The diesel generators will use 0 05% wt. sulfur fuel, the heating boilers
**
   will use No. 2 distillate fuel @ 0 2% wt. sulfur (no emission data avail
** for low sulfur fuel).
** Point Sources
                       QS
                              HS
                                    TS
                                          VS
                                               DS
** Parameters:
                      _ _ _ _
                             _ _ _ _
                                   _ _ _ _
                                         ----
                                               - - -
   SRCPARAM CAT3616A 0.181 22 9
                                   712.
                                         20 2
                                               0 9
  SRCPARAM CAT3616B
                      0.181 22 9
                                   712.
                                         20 2
                                               0 9
  SRCPARAM CAT3616C
                      0.181 22 9
                                   712
                                         20 2
                                               0 9
  SRCPARAM CAT3616D
                      0 181 22 9
                                   712
                                         20 2
                                               0.9
  SRCPARAM CAT3616E 0.181 22 9 712.
                                         20.2
                                               0 9
  SRCPARAM CAT3616F 0 181 22 9 712
                                         20 2
                                               0 9
  SRCPARAM CAT3616G 0.181 22 9 712
                                         20.2
                                               0 9
  SRCPARAM CAT3616H 0.181 22 9
                                   712.
                                         20.2 0.9
  SRCPARAM GLYBOILA 0 41
                             11 5 433
                                          70 06
  SRCPARAM GLYBOILB 0 41
                             11.5 433
                                          70 06
** Building heights and widths are input for calculation of building
** downwash
              Building widths are input beginning with the 10 degree
** flow vector and incrementing by 10 degrees clockwise
  BUILDHGT
           CAT3616A 36*13 9
                       0 0
  BUILDWID CAT3616A
                             0 0
                                   0.0
                                         0 0
                                               0 0
                                                     0 0
                                                          0.0
                                                                0 0
                       0 0
                             0 0
                                   0.0
                                                     0 0
                                                          0.0
            CAT3616A
                                         0 0
                                               0 0
                                                                0.0
                             3.00 3 05 3 19
                                                                6.00
            CAT3616A 0.0
                                              346 392 467
            CAT3616A 8 77 17 28 30 00 30.46 31 93 34,64 39.16 46.67
            CAT3616A 60 00 54 27 51.79 51 00
  BUILDHGT
            CAT3616B 36*13 9
                      0.0
                             0 0
                                   0 0
                                                     0 0
                                                           0 0
                                                                0 0
  BUILDWID
            CAT3616B
                                         0 0
                                               0 0
                       0.0
                             0 0
                                   0 0
                                         0.0
                                               0 0
                                                     0.0
                                                           0 0
                                                                0 0
            CAT3616B
                       0 0
                             9.00 9 14 9.58 10 39 11 75 14 00 18 00
            CAT3616B
            CAT3616B 26 31 30.46 30 00 30,46 31.93 34.64 39 16 46.67
            CAT3616B 51 96 47.89 45.69 45 00
  BUILDHGT
            CAT3616C 36*13.9
  BUILDWID
            CAT3616C
                      0.0
                            0.0
                                   0 0
                                         0.0
                                               0 0
                                                     0 0
                                                           0 0
                                                                0 0
                       0 0
                                                     0.0
                                                          0 0
                                                                0 0
            CAT3616C
                             0.0
                                   0 0
                                         0.0
                                               0 0
                       0 0 15 00 15.23 15.96 17.32 19.58 23 33 30 00
            CAT3616C
            CAT3616C 31 93 30.46 30 00 30.46 31 93 34 64 39 16 46.67
            CAT3616C 45.03 41.50 39 60 39 00
                      36*13 9
  BUILDHGT
            CAT3616D
                      0 0
                                   0 0
                                               0 0
                                                     0 0
                                                           0 0
                                                                0 0
  BUILDWID
            CAT3616D
                             0 0
                                         0 0
                             0 0
                                                     0 0
                                                           0 0
                                                                0.0
            CAT3616D
                       0 0
                                   0 0
                                         0 0
                                               0 0
                       0 0 21 00 21 32 22 35 24 25 27 41 32 67 34 64
            CAT3616D
            CAT3616D 31 93 30 46 30.00 30 46 31 93 34 64 39 16 43.08
            CAT3616D
                      38.11 35 12 33.51 33.00
                      36*13.9
  BUILDHGT
            CAT3616E
                                                     0 0
                                                           0.0
                                                                 0 0
  BUILDWID
            CAT3616E
                       0.0
                            0.0
                                   0.0
                                         0 0
                                               0 0
                                                           0 0
                                                                 0.0
                      0.0
                             0 0
                                   0 0
                                         0 0
                                               0 0
                                                     0 0
            CAT3616E
            CAT3616E
                      0.0 27 00 27 50 28 80 31 00 35 20 39 50 35 20
            CAT3616E 32 40 31 00 30 50 31 00 32 70 35 70 40 00 35.40
                      31 40 29 00 28 20 27.00
            CAT3616E
                      36*13 9
   BUILDHGT CAT3616F
```

## APPENDIX IV-B1 ISC2 AIR DISPERSION MODEL INPUT FILE

BUILDWID	CAT3616F 0 0 0.0 0.0 0.0 0 0 0 0.0 0.0
	CAT3616F 0.0 0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616F 0.0 33 00 33.50 35.20 38 30 42.80 39.50 35.00
	CAT3616F 32 20 30.80 30.60 31 00 32 50 35.30 33 30 28.10
	CAT3616F 24 80 22.90 21 90 21 00
BUILDHGT	
BUILDWID	
BOTHDWID	
	CAT3616G 0.0 39 00 39.40 41 40 45 00 47 00 39.50 35.00
	CAT3616G 32 30 31 00 30.50 31 00 32 40 31 00 23.80 20 20
DITTON	CAT3616G 18 00 16 60 15.80 15 00
BUILDHGT	CAT3616H 36*13 9
BUILDWID	CAT3616H 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616H 0 0 0.0 0.0 0.0 0 0 0 0 0 0 0.0
	CAT3616H 0 0 45.00 45 40 47.50 51 50 47 00 39 50 35.00
	CAT3616H 32 40 31.00 30 40 31 00 28 50 19.50 15 20 12 70
	CAT3616H 11.40 10.50 10 00 9.00
BUILDHGT	GLYBOILA 36*8 5
BUILDWID	GLYBOILA 2 03 2 13 2.31 2 61 3 11 4 00 5.85 11.52
	GLYBOILA 21 00 21.32 22 35 14 00 10 89 9 14 8 08 7 45
	GLYBOILA 7 11 7.00 7 11 7 45 8 08 9.14 10 89 14 00
	GLYBOILA 22 35 28.43 28 00 21 00 11 52 5.85 4 00 3 11
	GLYBOILA 2.61 2 31 2 13 2 00
BUILDHGT	GLYBOILB 36*8.5
BUILDWID	GLYBOILB 2 03 2 13 2.31 2.61 3.11 4 00 5 85 11 52
	GLYBOILB 16 00 16.25 17 03 14 00 10 89 9 14 8 08 7 45
	GLYBOILB 7 11 7.00 7 11 7 45 8 08 9 14 10 89 14 00
	GLYBOILB 22.35 33 51 33 00 21.00 11 52 5 85 4 00 3 11
	GLYBOILB 2.61 2 31 2 13 2.00
_	n pits are also sources of SO2 emissions from mobile equipment.
** Firstly,	, Koala Pit.
SO LOCATION	KOALAP AREA 400 200 460.
SO SRCPARAM	KOALAP 0.00000356 1 0 525.0
** Secondly	7, Fox Pit.
	FOXP AREA -40006300 442
	FOXP 0.00000518 1 0 575 0
SO SRCPARAM	FORF 0.00000518 1 0 575 0
** Thirdly.	, Leslie Pit
	LESLIEP AREA -2300 -3800. 442.
	LESLIEP 0.00000282 1 0 800 0
bo bitorindai	
** The Sour	rces are divided into two different groups below:
SO SRCGROUP	STATION CAT3616A CAT3616B CAT3616C CAT3616D
SO SRCGROUP	STATION CAT3616E CAT3616F CAT3616G CAT3616H
	STATION GLYBOILA GLYBOILB
SO SRCGROUP	OPENPIT KOALAP FOXP LESLIEP
SO FINISHED	
	for the REceptor grid are provided below
RE STARTING	
	of 498 discrete receptors will be used.
	-2500 -2500 457
	-2500 -2000 456
NE DICCARI	

$\mathbf{RE}$	DISCCART	-2500.	-1500.	456
$\mathbf{RE}$	DISCCART	-2500.	-1000	453
RE	DISCCART	-2500.	-750	453.
RE	DISCCART	-2500.	-500.	459.
RE	DISCCART	-2500.	-400.	468.
RE	DISCCART	-2500	-300.	468.
RE	DISCCART	-2500	-200.	467
RE	DISCCART	-2500	-100.	466.
RE	DISCCART	-2500	100.	467.
RE	DISCCART	-2500	200.	468.
RE	DISCCART	-2500.	300.	473
RE	DISCCART	-2500	400	475
RE	DISCCART	-2500	500	478
RE	DISCCART	-2500	750.	485.
RE	DISCCART	-2500,	1000.	485.
RE	DISCCART	-2500	1500.	485.
RE	DISCCART	-2500	2000.	501.
RE	DISCCART	-2500	2500.	501.
RE	DISCCART	-2000	-2500.	455
RE	DISCCART	-2000.	-2000	458
RE	DISCCART	-2000.	-1500	457
RE	DISCCART	-2000.	-1000	453
RE	DISCCART	-2000.	-750	450
RE	DISCCART	-2000.	-500	448
RE	DISCCART	-2000.	-400	448
			-300	448.
RE	DISCCART	-2000.		
RE	DISCCART	-2000.	-200.	448
RE	DISCCART	-2000.	-100	451
RE	DISCCART	-2000.	100	466
RE	DISCCART	-2000.	200	464
RE	DISCCART	-2000.	300.	465.
RE	DISCCART	-2000.	400.	469.
RE	DISCCART	-2000	500	473
RE	DISCCART	-2000	750	480
RE	DISCCART	-2000	1000	478
RE	DISCCART	-2000.	1500	492
RE	DISCCART	-2000	2000.	494.
RE	DISCCART	-2000	2500	505.
RE	DISCCART	-1500	-2500	448
RE	DISCCART	-1500	-2000	452
RE	DISCCART	-1500	-1500.	455
$\mathbf{RE}$	DISCCART	-1500.	-1000.	460.
$\mathbf{RE}$	DISCCART	-1500.	-750.	454.
RE	DISCCART	-1500.	-500.	454.
RE	DISCCART	-1500.	-400	454
RE	DISCCART	-1500.	-300	454
RE	DISCCART	-1500	-200	454
RE	DISCCART	-1500	-100	454
$\mathbf{RE}$	DISCCART	-1500	100	454
$\mathbf{RE}$	DISCCART	-1500	200	454
RE	DISCCART	-1500.	300	456.
RE	DISCCART	-1500	400	463.
RE	DISCCART	-1500	500.	467
RE	DISCCART	-1500.	750.	477

RE	DISCCART	-1500.	1000	477.
RE	DISCCART	-1500.	1500	487.
RE	DISCCART	-1500.	2000.	487
RE	DISCCART	-1500.	2500.	497
RE	DISCCART	-1000.	-2500	448
RE	DISCCART	-1000	-2000.	448.
RE	DISCCART	-1000	-1500.	453.
RE	DISCCART	-1000	-1000.	453.
RE	DISCCART	-1000.	-750.	453.
$\mathbf{RE}$	DISCCART	-1000	-500.	453.
RE	DISCCART	-1000.	-400.	453.
RE	DISCCART	-1000	-300.	456.
RE	DISCCART	-1000	-200.	455.
RE	DISCCART	-1000	-100	455.
RE	DISCCART	-1000	100	454
RE	DISCCART	-1000	200	454.
RE	DISCCART	-1000.	300	454
RE	DISCCART	-1000.	400	454
RE	DISCCART	-1000	500	455
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000	1000	479
RE	DISCCART	-1000	1500.	482.
RE	DISCCART		2000.	484
RE	DISCCART	-1000.	2500	497
RE	DISCCART	-750	-2500	448
RE	DISCCART	-750	-2000	448
RE	DISCCART	-750	-1500	454
RE	DISCCART	-750.	-1000	456
RE	DISCCART	-750	-750	455
RE	DISCCART	-750	-500	456
RE	DISCCART	-750	-400,	
RE	DISCCART	-750	-300.	460.
RE	DISCCART	-750.	-200.	458
RE	DISCCART	-750	-100.	
RE	DISCCART	-750	100.	
RE	DISCCART	-750	200	
RE	DISCCART	-750	300.	
RE	DISCCART	-750	400.	454.
RE	DISCCART	-750.	400. 500.	455.
RE	DISCCART	-750.	750.	457.
	DISCCART			474.
RE		-750.	1000. 1500	4/4.
RE	DISCCART	-750.		
RE	DISCCART	-750.	2000.	487.
RE	DISCCART	-750.	2500	499.
RE	DISCCART	-500.	-2500.	448.
RE	DISCCART	-500.	-2000	448.
RE	DISCCART	-500	-1500	457
RE	DISCCART	-500	-1000	466
RE	DISCCART	-500	-750	457
RE	DISCCART	-500	-500.	457
RE	DISCCART	-500	-400.	457
RE	DISCCART	-500.	-300.	457.
RE	DISCCART	-500.	-200.	456.
RE	DISCCART	-500.	-100.	455

	D.T.G.G.G.T.S.S.			. – .
RE	DISCCART	-500	100	454
RE	DISCCART	-500	200	454
RE	DISCCART	-500.	300.	454
RE	DISCCART	-500.	400	454
RE	DISCCART	-500.	500	455
RE	DISCCART	-500.	750.	455.
RE	DISCCART	-500	1000.	463
RE	DISCCART	-500	1500.	484.
RE	DISCCART	-500	2000.	485.
$\mathbf{RE}$	DISCCART	-500	2500	501
RE	DISCCART	-400	-2500	448
RE	DISCCART	-400	-2000	450.
RE	DISCCART	-400	-1500.	465
$\mathbf{RE}$	DISCCART	-400	-1000	457
RE	DISCCART	-400	-750	457
RE	DISCCART	-400	~500	457.
RE	DISCCART	-400	-400.	457
RE	DISCCART	-400	-300	455
RE	DISCCART	-400.	-200	455
RE	DISCCART	-400	-100	455.
RE	DISCCART	-400	100	454.
RE	DISCCART	-400	200.	454
RE	DISCCART	-400	300.	454
RE	DISCCART	-400.	400	454
RE	DISCCART	-400.	500	454
RE		-400. -400	750	457.
	DISCCART			
RE	DISCCART	-400	1000.	463
RE	DISCCART	-400.	1500	475
RE	DISCCART	-400.	2000	485
RE	DISCCART	-400.	2500	499
RE	DISCCART	-300.	-2500	448.
RE	DISCCART	-300.	-2000.	
RE	DISCCART	-300.	-1500.	467
RE	DISCCART	-300.	-1000.	
RE	DISCCART	-300	-750.	458.
RE	DISCCART	-300.	-500.	462.
RE	DISCCART	-300.	-400.	459.
RE	DISCCART	-300.	-300.	455
RE	DISCCART	-300.	-200	454
RE	DISCCART	-300.	-100	454
RE	DISCCART	-300	100	454
RE	DISCCART	-300	200	454.
RE	DISCCART	-300.	300.	454
RE	DISCCART	-300	400	454
RE	DISCCART	-300	500	454
RE	DISCCART	-300	750	462
RE	DISCCART	-300	1000	466
RE	DISCCART	-300	1500.	468.
RE	DISCCART	-300	2000.	487.
RE	DISCCART	-300,	2500.	495
RE	DISCCART	-200.	-2500.	448.
RE	DISCCART	-200.	-2000	440. 462.
RE	DISCCARI	-200.	-1500	462. 467
RE	DISCCART	-200	-1000	461

RE	DISCCART	-200.	-750	462
RE	DISCCART	-200.	-500	464.
RE	DISCCART	-200.	-400.	462
RE	DISCCART	-200	-300.	457
RE	DISCCART	-200	-200	456
RE	DISCCART	-200	-100	457.
RE	DISCCART	-200	100	457.
RE	DISCCART	-200	200	457.
RE	DISCCART	-200	300	457.
RE	DISCCART	-200	400.	456
RE	DISCCART	-200	500.	454
RE	DISCCART	-200.	750	460
RE	DISCCART	-200	1000	465
RE	DISCCART	-200	1500.	470
RE	DISCCART	-200.	2000	482
RE	DISCCART	-200.	2500	490
RE	DISCCART	-100.	-2500	448.
RE	DISCCART	-100.	-2000.	458.
RE	DISCCART	-100.	-1500.	469
RE	DISCCART	-100	-1000	464
RE	DISCCART	-100	-750	467
RE	DISCCART	-100	-500.	463.
RE	DISCCART	-100	-400.	463.
RE	DISCCART	-100	-300	457.
RE	DISCCART	-100	-200	457.
RE	DISCCART	-100.	-100	457
RE	DISCCART	-100	100	457
RE	DISCCART	-100	200	458
RE	DISCCART	-100	300.	458
RE	DISCCART	-100	400.	460
RE	DISCCART	-100.	500	454
RE	DISCCART	-100	750	460
RE	DISCCART	-100	1000	463
RE	DISCCART	-100	1500	470.
$\mathbf{RE}$	DISCCART	-100	2000.	482
RE	DISCCART	-100	2500	483
RE	DISCCART	100.	-2500	448
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$\mathbf{RE}$	DISCCART	100	-1500	468.
RE	DISCCART	100.	-1000	476
RE	DISCCART	100.	-750	482
RE	DISCCART	100	-500	474
RE	DISCCART	100	-400	475
RE	DISCCART	100	-300.	475.
RE	DISCCART	100	-200	466.
RE	DISCCART	100	-100.	466
RE	DISCCART	100	100.	466
RE	DISCCART	100	200.	466
RE	DISCCART	100	300.	466
RE	DISCCART	100.	400.	459.
RE	DISCCART	100.	500	457
RE	DISCCART	100.	750	456.
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		200	2000	- / 0

RE	DISCCART	100	2000	486
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RE	DISCCART	200.	-2500	448
RE	DISCCART	200.	-2000	458.
RE	DISCCART	200	-1500.	468
RE	DISCCART	200	-1000.	477
RE	DISCCART	200	-750.	480
RE	DISCCART	200	-500.	478.
RE	DISCCART	200	-400	477.
RE	DISCCART	200	-300	477.
RE	DISCCART	200	-200.	470
RE	DISCCART	200	-100	470
RE	DISCCART	200	100	470
RE	DISCCART	200	200	470.
RE	DISCCART	200	300	468
RE	DISCCART	200.	400	462
RE	DISCCART	200.	500	457.
RE	DISCCART	200	750	455.
RE	DISCCART	200	1000.	465
RE	DISCCART	200	1500.	474
RE	DISCCART	200	2000.	483
$\mathbf{RE}$	DISCCART	200.	2500.	476
RE	DISCCART	300	-2500.	452.
RE	DISCCART	300	-2000	468.
RE	DISCCART	300	-1500,	473
RE	DISCCART	300	-1000	482
RE	DISCCART	300	-750	483
RE	DISCCART	300	-500	477.
RE	DISCCART	300	-400	477
RE	DISCCART	300	-300	476
RE	DISCCART	300	-200	
				474
RE	DISCCART	300.	-100	475
RE	DISCCART	300	100	473
RE	DISCCART	300	200	470.
RE	DISCCART	300.	300	467
RE	DISCCART	300.	400	463
RE	DISCCART	300	500	457
RE	DISCCART	300	750	454
RE	DISCCART	300.	1000.	462
RE	DISCCART	300.	1500	476
RE	DISCCART	300.	2000	477
RE	DISCCART	300.	2500	474
RE	DISCCART	400	-2500	457
RE	DISCCART	400	-2000	469
RE	DISCCART	400	-1500	475
RE	DISCCART	400	-1000.	486.
RE	DISCCART	400	-750	486.
RE	DISCCART	400	-500	477
RE	DISCCART	400	-400	476
RE	DISCCARI	400	-300	473
RE	DISCCART	400	-200	469
RE	DISCCART	400	-100	468
RE	DISCCART	400	100.	468
RE	DISCCART	400	200.	468.

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RE	DISCCART	400	300.	465
RE	DISCCART	400	400.	462
RE	DISCCART	400	500.	455
RE	DISCCART	400.	750	454
RE	DISCCART	400.	1000	454.
RE	DISCCART	400	1500	468.
RE	DISCCART	400	2000.	473
RE	DISCCART	400	2500.	473
RE	DISCCART	500	-2500.	462
RE	DISCCART	500.	-2000.	468
$\mathbf{RE}$	DISCCART	500	-1500	478
RE	DISCCART	500	-1000	487.
RE	DISCCART	500	-750.	486
RE	DISCCART	500.	-500.	478
RE	DISCCART	500	-400.	479.
RE	DISCCART	500	-300	481.
RE	DISCCART	500	-200.	481.
RE	DISCCART	500.	-100	477
RE	DISCCART	500.	100	473
RE	DISCCART	500	200	468
RE	DISCCART	500	300	465
RE	DISCCART	500	400	457.
RE	DISCCART	500	500.	454
RE	DISCCART	500	500. 750	454
RE	DISCCART	500	1000	454
RE	DISCCART	500	1500	471
RE	DISCCART	500	2000.	472
RE	DISCCART	500	2500.	472
RE	DISCCART	750.	-2500	462
RE	DISCCART	750	-2000	474
RE	DISCCART	750	-1500	483
RE	DISCCART	750	-1000	493.
RE	DISCCART	750.	-750	488.
RE	DISCCART	750.	-500	494.
RE	DISCCART	750.	-400.	494
RE	DISCCART	750.	-300	487
RE	DISCCART	750.	-200	487
RE	DISCCART	750.	-100	484
RE	DISCCART	750.	100.	482
RE	DISCCART	750.	200	477
RE	DISCCART	750.	300	474
RE	DISCCART	750	400	472
RE	DISCCART	750	500	465.
RE	DISCCART	750	750	458
RE	DISCCART	750.	1000	454
RE	DISCCART	750	1500	457
RE	DISCCART	750.	2000	464
RE	DISCCART	750.	2500	473
RE	DISCCART	1000	-2500	464
RE	DISCCART	1000	-2000	480.
RE	DISCCART	1000.	-1500.	482. 501
RE	DISCCART	1000.	-1000.	501
RE	DISCCART	1000	-750.	490
RE	DISCCART	1000	-500.	493.

RE	DISCCART	1000	-400	493
RE	DISCCART	1000	-300	493
RE	DISCCART	1000	-200	484
$\mathbf{RE}$	DISCCART	1000	-100	483.
$\mathbf{RE}$	DISCCART	1000	100	483.
$\mathbf{RE}$	DISCCART	1000.	200	481
RE	DISCCART	1000.	300	477
RE	DISCCART	1000	400	476
RE	DISCCART	1000	500	472
RE	DISCCART	1000	750	467
RE	DISCCART	1000	1000	463
RE	DISCCART	1000.	1500	456
RE	DISCCART	1000.	2000.	466
RE	DISCCART	1000.	2500	483
RE	DISCCART	1500.	-2500.	455
RE	DISCCART	1500.	-2000.	473
RE	DISCCART	1500.	-1500	481
RE	DISCCART	1500.	-1000	487
RE	DISCCART	1500.	-750	492
RE	DISCCART	1500.	-500.	487.
RE	DISCCART	1500.	-400	487
RE	DISCCART	1500.	-300.	486
RE	DISCCART	1500.	-200	485
RE	DISCCART	1500.	-100	483
RE	DISCCART	1500.	100	483.
RE	DISCCART	1500.	200.	483
RE	DISCCART	1500.	300.	483
RE	DISCCART	1500.	400	483
RE	DISCCART	1500.	500	483
RE	DISCCART	1500.	750	483
RE	DISCCART	1500.	1000	476
	DISCCART	1500.	1500.	468.
RE		1500.	2000	400. 464
RE	DISCCART			404 475
RE	DISCCART	1500.	2500	
RE	DISCCART	2000.	-2500	454
RE	DISCCART	2000.	-2000	468
RE	DISCCART	2000.	-1500.	473.
RE	DISCCART	2000	-1000	485
RE	DISCCART	2000	-750	493
RE	DISCCART	2000	-500	493
RE	DISCCART	2000	-400	489
RE	DISCCART	2000	-300	486
RE	DISCCART	2000	-200	484
RE	DISCCART	2000	-100	486
RE	DISCCART	2000	100	486.
RE	DISCCART	2000	200.	487
RE	DISCCART	2000	300.	487.
RE	DISCCART	2000.	400	487
RE	DISCCART	2000	500	487
RE	DISCCART	2000	750	492
RE	DISCCART	2000.	1000	487
RE	DISCCART	2000	1500	470
RE	DISCCART	2000	2000	464
RE	DISCCART	2000	2500	465

	DIGGGIDM	0-00	0500	454
RE	DISCCART	2500	-2500.	
RE	DISCCART	2500	-2000.	473
RE	DISCCART	2500	-1500	468.
$\mathbf{RE}$	DISCCART	2500	-1000	483.
RE	DISCCART	2500	-750	484.
RE	DISCCART	2500	-500	484
RE	DISCCART	2500.	-400	484
$\mathbf{RE}$	DISCCART	2500.	-300	484
RE	DISCCART	2500	-200	484
RE	DISCCART	2500	-100	484
RE	DISCCART	2500	100	489
RE	DISCCART	2500.	200	494
RE	DISCCART	2500	300	497
RE	DISCCART	2500	400	497
RE	DISCCART	2500.	500.	497
RE	DISCCART	2500	750	497
RE	DISCCART	2500	1000	493
RE	DISCCART	2500	1500	484
RE	DISCCART	2500	2000	473
RE			2500	468
	DISCCART	2500		
RE	DISCCART			0. 475
RE	DISCCART	10000	-10000	
RE	DISCCART	0.	-10000	
RE	DISCCART	0	10000	
RE	DISCCART		10000	
RE	DISCCART	-10000	-10000	
RE	DISCCART	15000	15000	
RE	DISCCART	15000	-15000	
RE	DISCCART	0	-15000	
RE	DISCCART	0		). 475.
RE	DISCCART	15000.		). 475
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$\mathbf{RE}$	DISCCART			). 475
$\mathbf{RE}$	DISCCART	-15000		
$\mathbf{RE}$	DISCCART	0	-17500	
RE	DISCCART			). 475.
RE		10000		
RE	DISCCART	15000	-17500	). 475
RE	DISCCART	-5000	-17500	
$\mathbf{RE}$	DISCCART	-10000	-17500	). 475
$\mathbf{RE}$	DISCCART	-15000	-17500	). 475.
$\mathbf{RE}$	DISCCART	20000	20000	) 475
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RE	DISCCART	2500	-5000	) 475
RE	DISCCART	2500	-7500	). 475
RE	DISCCART	2500	-10000	) 475
RE	DISCCART	2500.	-12500	). 475
RE	DISCCART	2500.	-15000	475
RE	DISCCART	2500	-17500	
RE	DISCCART	2500	-20000	

$\mathbf{RE}$	DISCCART	-5000	-2500	475.
RE	DISCCART	10000.	-2500	475.
RE	DISCCART	15000	-2500	475
RE	DISCCART	20000	-2500.	475.
RE	DISCCART	-15000	20000.	475
$\mathbf{RE}$	DISCCART	-10000	20000.	475
$\mathbf{RE}$	DISCCART	-5000.	20000	475
RE	DISCCART	5000.	20000	475.
RE	DISCCART	10000	20000	475
RE	DISCCART	15000	20000	475.
RE	DISCCART	-20000	15000	475.
RE	DISCCART	-10000	15000	475.
RE	DISCCART	-5000	15000	475.
RE	DISCCART	5000	15000	475.
RE	DISCCART	10000	15000	475
RE	DISCCART	20000	15000.	475
RE	DISCCART	-20000.	10000.	475
RE	DISCCART	-15000	10000	475
RE	DISCCART	-5000	10000.	475
RE	DISCCART	5000	10000.	475
RE	DISCCART	15000	10000.	475
RE	DISCCART	20000	10000.	475
RE	DISCCART	-20000	5000.	475
RE	DISCCART	-15000	5000	475
RE	DISCCART	-10000	5000.	475.
RE	DISCCART	-5000	5000.	475.
RE	DISCCART	~5000 0.	5000.	475
RE	DISCCART	5000.	5000.	475
RE	DISCCART	10000.	5000.	475
RE	DISCCARI	15000.	5000	475
RE	DISCCART	20000.	5000	475.
RE			5000 0.	475.
RE	DISCCART	-20000.		
		-10000.	0	475.
RE	DISCCART	-5000.	0	475
RE	DISCCART	5000.	0	475.
RE	DISCCART	10000.	0	475.
RE	DISCCART	20000.	0.	475.
RE	DISCCART	-20000.	-5000	475.
RE	DISCCART	-15000.	-5000	475.
RE	DISCCART	-10000.	-5000	475.
RE	DISCCART	-5000.	-5000	475.
RE	DISCCART	0.	-5000.	475.
RE	DISCCART	5000	-5000	475
RE	DISCCART	10000	-5000	475
RE	DISCCART	15000	-5000	475
RE	DISCCART	20000	-5000.	475
RE	DISCCART	-20000	-10000.	475
RE	DISCCART	-15000	-10000.	475.
RE	DISCCART	-5000.	-10000.	475
RE	DISCCART	5000	-10000	475
RE	DISCCART	15000	-10000	475
RE	DISCCART	20000	-10000	475
RE	DISCCART	-20000	-15000	475
RE	DISCCART	-10000	-15000	475

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RE DISCCART
            -5000. -15000
                             475.
RE DISCCART 5000. -15000
                             475
RE DISCCART
             10000. -15000
                            475.
RE DISCCART 20000. -15000 475.
RE DISCCART -15000 -20000
                             475.
RE DISCCART -10000 -20000
                             475.
RE DISCCART -5000 -20000. 475
RE DISCCART 5000 -20000. 475
RE DISCCART 10000 -20000 475
RE DISCCART 15000. -20000. 475.
RE FINISHED
**
   The MEteorology pathway begins here.
ME STARTING
** There are no on-site upper air data available, so assumed mixing heights
** were used
              The WDROTATE is used to convert the
** weather station wind directions (from which the wind is blowing)
** to the wind vector (direction toward which the wind is blowing)
** required by the ISCST2 model There are gaps in the met data
  INPUTFIL ISCST294 DAT
  ANEMHGHT 10 METERS
  SURFDATA 94823 1994 KOALCAMP
  UAIRDATA 94823 1994 NOTAVAIL
  STARTEND 94 01 01
                     94 12 31
  DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31
  WDROTATE 180
ME FINISHED
** The OUtput pathway begins here.
OU STARTING
** RECTABLE will o/p high value summary for each receptor
  RECTABLE ALLAVE FIRST
** MAXTABLE will o/p overall maximum value summary tables
  MAXTABLE ALLAVE 50
** MAXIFILE will o/p all occurrences of violations of a user-specified
** threshold, in this case the Cdn Ambient Air Qual Objective for
** sulfur dioxide 24-hour is 300 ug/Nm<sup>3</sup> (acceptable)
  MAXIFILE 24 STATION 300.0
                                 MAX24SO2 FIL 21
  MAXIFILE 24 OPENPIT 300.0 MAX24SO2 FIL 21
** PLOTFILE will o/p to a file suitable for import into a graphics
** package, in this case Surfer for Windows.
  PLOTFILE 1 STATION 1ST K2001SO1 FST 24
   PLOTFILE 1 OPENPIT 1ST K2001SO1.FST 24
  PLOTFILE 24 STATION 1ST K2007SO2 FST 23
   PLOTFILE 24 OPENPIT 1ST K2007SO2 FST 23
   PLOTFILE PERIOD STATION K2007SOA FST 26
   PLOTFILE PERIOD OPENPIT K2007SOA FST 26
OU FINISHED
```

**Project No. 4551 BHP Minerals Canada NWT Diamonds **Modeller: Dan Jarratt, Rescan Environmental Services **The contaminant being modelled is CO ** ** All met data is from the Koala Camp Weather Station ** To run the model type: ** ** ISCST2EM K2007CO INP K2007CO.OUT ** ** The results for this problem are provided in file K2007CO OUT ** **NOTE: THE DIESEL POWER PLANT STACK HEIGHT 22 9M FOR THIS MODEL ITERATION THE FUEL FOR THE DIESEL ** ** POWER STATION CONTAINS 0 05 WT % SULPHUR THE CO EMISSION RATE HAS ** BEEN INCREASED BY 30% TO ACCOUNT FOR AIR OUALITY PERMIT APPLICATION ** PURPOSES THE EVENT PROCESSOR WILL NOT BE USED FOR THIS ITERATION ** THE POWER GENERATORS @ 82 5 % OF FULL LOAD WILL BE USED TO PLOT ** 1-HOUR CO CONCENTRATIONS ** The COntrol parameters for this model run are as follows: CO STARTING TITLEONE BHP NWT Diamonds CO MODELOPT DFAULT RURAL CONC AVERTIME 1 8 PERIOD POLLUTID CO TERRHGTS ELEV METERS ELEVUNIT RUNORNOT RIN ERRORFIL ERRORCO.OUT CO FINISHED ** The SOurces included in this model run are as follows: SO STARTING The diesel power plant will operate at 70% of full load for 24 h/day. ** The emiaaion rates have already been adjusted, so use a emission ** ** factor of 1.0 SO LOCATION CAT3616A POINT 43.0 45.0 466 0 SO EMISFACT CAT3616A HROFDY 24*1 0 SO LOCATION CAT3616B POINT 466.0 43.0 51 0 SO EMISFACT CAT3616B HROFDY 24*1 0 SO LOCATION CAT3616C POINT 43 0 57 0 466 0 SO EMISFACT CAT3616C HROFDY 24*1 0 466 0 SO LOCATION CAT3616D POINT 43.0 63.0 SO EMISFACT CAT3616D HROFDY 24*1.0 SO LOCATION CAT3616E POINT 43 0 69 0 466 0 SO EMISFACT CAT3616E HROFDY 24*1 0 SO LOCATION CAT3616F POINT 43 0 75 0 466 0 SO EMISFACT CAT3616F HROFDY 24*1 0 SO LOCATION CAT3616G POINT 43 0 466.0 81 0 SO EMISFACT CAT3616G HROFDY 24*1.0 87 0 466 0 SO LOCATION CAT3616H POINT 43 0 SO EMISFACT CAT3616H HROFDY 24*1.0

** The diesel fired heating boilers both operate Dec -Mar , one boiler operates
** Sept , Oct , Nov and Apr , no boiler operation May to August;

```
**
   adjust emission factors accordingly. Each boiler runs at avg 75% of full
**
   load
SO LOCATION GLYBOILA
                       POINT
                                12.0 -188 0
                                                466 0
SO EMISFACT
            GLYBOILA MONTH
                               3*0 75 8*0 0
                                            1*0 75
SO LOCATION GLYBOILB
                      POINT
                                17 0 -188.0
                                                466.0
                                              4*0 75
            GLYBOILB MONTH
                               4*0.75 4*0.0
SO EMISFACT
**
   The diesel generators will use 0 05% wt sulfur fuel, the heating boilers
**
   will use No 2 distillate fuel @ 0 2% wt sulfur (no emission estimates
** avail for boiler using low sulfur fuel).
** Point Sources
                        QS
                               HS
                                           VS
                                      TS
                                                DS
** Parameters:
                       - - - -
                               ----
                                     _ _ _ _
                                           _ _ _ _
                                                 _ _ _
SO SRCPARAM CAT3616A 0.882
                               22 9
                                     712.
                                           20.2
                                                0.9
SO SRCPARAM CAT3616B 0.882
                               22 9
                                     712.
                                          20 2
                                                09
SO SRCPARAM CAT3616C 0.882
                               22.9
                                     712
                                           20 2
                                                0.9
SO SRCPARAM CAT3616D 0.882
                              22 9
                                     712.
                                          20.2
                                                0.9
SO SRCPARAM CAT3616E 0.882 22 9
                                               09
                                   712.
                                          20.2
SO SRCPARAM CAT3616F
                       0 882 22.9
                                    712.
                                          20 2
                                                0 9
SO SRCPARAM CAT3616G 0 882 22 9
                                               09
                                    712
                                          20 2
SO SRCPARAM CAT3616H 0 882 22 9
                                    712.
                                          20.2
                                               09
SO SRCPARAM GLYBOILA 0 065 11 5 433
                                          70
                                               0.6
SO SRCPARAM GLYBOILB 0 065 11 5 433
                                          7 0 0.6
** Building heights and widths are input for calculation of building
              Building widths are input beginning with the 10 degree
** downwash
** flow vector and incrementing by 10 degrees clockwise
  BUILDHGT
            CAT3616A 36*13 9
   BUILDWID
            CAT3616A
                        0 0
                              0 0
                                    0 0
                                          0.0
                                                0.0
                                                      0 0
                                                            0 0
                                                                  0 0
                              0 0
                                    0.0
                                                0.0
                                                      0 0
                                                            0 0
                                                                  0 0
             CAT3616A
                        0 0
                                          0 0
                        0.0
                              3.00 3 05 3 19
                                               3 46
                                                      3 92
                                                           4.67
                                                                  6 00
             CAT3616A
                        8.77 17 28 30 00 30 46 31 93 34 64 39 16 46 67
             CAT3616A
             CAT3616A 60.00 54 27 51 79 51 00
   BUILDHGT
            CAT3616B 36*13.9
                                                      0.0
                                                                  0 0
   BUILDWID CAT3616B
                        0 0
                              0 0
                                    0 0
                                          0 0
                                                0 0
                                                            0 0
                                                            0 0
                                                                  0 0
             CAT3616B
                        0 0
                              0.0
                                    0 0
                                          0 0
                                                0.0
                                                      0.0
                              9 00 9 14 9 58 10.39 11 75 14 00 18.00
             CAT3616B
                        0 0
             CAT3616B 26 31 30 46 30 00 30 46 31.93 34 64 39.16 46.67
             CAT3616B 51 96 47 89 45 69 45.00
   BUILDHGT
             CAT3616C
                       36*13 9
                                                      0 0
                                                            0 0
                                                                  0 0
   BUILDWID
                        0.0
                              0.0
                                    0 0
                                          0.0
                                                0.0
            CAT3616C
                                                0 0
                                                      0.0
                                                            0.0
                                                                  0 0
             CAT3616C
                        0.0
                              0.0
                                    0 0
                                          0.0
                        0 0 15.00 15 23 15.96 17 32 19.58 23 33 30 00
             CAT3616C
             CAT3616C
                       31 93 30 46 30.00 30 46 31 93 34 64 39 16 46.67
             CAT3616C
                       45 03 41.50 39.60 39.00
   BUILDHGT
             CAT3616D
                       36*13.9
                                                0 0
                                                      0 0
                                                            0 0
                                                                  0.0
   BUILDWID
                       0 0
                              0.0
                                    0 0
                                          0 0
            CAT3616D
                                                                  0 0
                              0 0
                                    0 0
                                          0 0
                                                0.0
                                                      0 0
                                                            0 0
             CAT3616D
                        0.0
                             21 00 21 32 22 35 24 25 27.41 32 67 34 64
             CAT3616D
                        0 0
             CAT3616D
                       31 93 30 46 30.00 30 46 31 93 34 64 39 16 43 08
                       38.11 35 12 33.51 33 00
             CAT3616D
                       36*13.9
   BUILDHGT
             CAT3616E
                                                      0 0
                                                            0 0
                                                                  0 0
                        0 0
                                                0 0
   BUILDWID
             CAT3616E
                             0 0
                                    0 0
                                          0 0
                                          0 0
                                                0.0
                                                      0.0
                                                            0 0
                                                                  0.0
             CAT3616E
                        0.0
                              0 0
                                    0 0
             CAT3616E
                        0 0
                             27 00 27 50 28.80 31 00 35.20 39 50 35 20
             CAT3616E 32.40 31.00 30 50 31.00 32 70 35 70 40 00 35 40
             CAT3616E 31.40 29.00 28 20 27 00
```

BUILDHGT	CAT3616F 36*13 9
BUILDWID	CAT3616F 0 0 0.0 0.0 0.0 0.0 0 0 0 0 0 0 0
-0100.10	CAT3616F 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616F 0.0 33 00 33 50 35.20 38 30 42 80 39 50 35.00
	CAT3616F 32 20 30 80 30 60 31 00 32 50 35.30 33.30 28 10
	CAT3616F 24 80 22.90 21 90 21.00
BUILDHGT	CAT3616G 36*13.9
BUILDWID	CAT3616G 0.0 0 0 0 0.0 0.0 0 0 0 0 0 0 0 0 0 0
	CAT3616G 0.0 0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616G 0 0 39 00 39 40 41 40 45 00 47 00 39.50 35.00
	CAT3616G 32 30 31.00 30.50 31 00 32 40 31 00 23 80 20 20
	CAT3616G 18 00 16 60 15.80 15 00
BUILDHGT	CAT3616H 36*13.9
BUILDWID	CAT3616H 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616H 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	CAT3616H 0 0 45.00 45 40 47.50 51 50 47 00 39.50 35.00
	CAT3616H 32.40 31.00 30 40 31.00 28.50 19.50 15 20 12 70
	CAT3616H 11 40 10 50 10.00 9 00
BUILDHGT	GLYBOILA 36*8 5
BUILDWID	GLYBOILA 2 03 2.13 2 31 2 61 3 11 4 00 5 85 11.52
	GLYBOILA 21.00 21 32 22 35 14.00 10 89 9.14 8 08 7 45
	GLYBOILA 7 11 7.00 7 11 7.45 8.08 9 14 10 89 14 00
	GLYBOILA 22 35 28.43 28.00 21.00 11 52 5 85 4 00 3 11
	GLYBOILA 2 61 2 31 2.13 2 00
BUILDHGT	GLYBOILB 36*8 5
BUILDWID	GLYBOILB 2 03 2.13 2 31 2 61 3.11 4 00 5 85 11 52
	GLYBOILB 16 00 16.25 17 03 14 00 10 89 9 14 8 08 7 45
	GLYBOILB 7 11 7 00 7 11 7.45 8.08 9 14 10.89 14.00
	GLYBOILB 22 35 33 51 33.00 21 00 11 52 5 85 4 00 3 11
	GLYBOILB 2 61 2 31 2.13 2 00
** The open	pits are also sources of CO emissions from mobile equipment
_	Koala Pit
SO LOCATION	
SO SRCPARAM	KOALAP 0 000000687 1 0 525.0
** Secondly	, Fox Pit
_	FOXP AREA -4000 -6300 442
	FOXP 0 0000093 1 0 575 0
** Thirdly.	Leslie Pit
	LESLIEP AREA -23003800 442
	LESLIEP 0.00000462 1 0 800 0
** The Sour	ces are divided into three different groups below:
	STATION CAT3616A CAT3616B CAT3616C CAT3616D
	STATION CAT3616E CAT3616F CAT3616G CAT3616H
	STATION GLYBOILA GLYBOILB
	OPENPIT KOALAP FOXP LESLIEP
SO FINISHED	
	or the REceptor grid are provided below
RE STARTING	or the Maceboor Arra are provided berow
	of 499 diagrate regentors will be used
	of 498 discrete receptors will be used
KE DISCCART	-25002500 457.

		* <b>-</b>		
RE	DISCCART	-2500	-2000	
RE	DISCCART	-2500	-1500	-
RE	DISCCART	-2500	-1000.	453
$\mathbf{RE}$	DISCCART	-2500	-750.	453
RE	DISCCART	-2500.	-500	459
RE	DISCCART	-2500.	-400	468
RE	DISCCART	-2500.	-300.	468.
RE	DISCCART	-2500.	-200.	467
RE	DISCCART	-2500	-100.	466
$\mathbf{RE}$	DISCCART	-2500	100.	467
RE	DISCCART	-2500	200.	468
RE	DISCCART	-2500	300	473
RE	DISCCART	-2500	400.	475.
$\mathbf{RE}$	DISCCART	-2500	500	478.
RE	DISCCART	-2500	750	485.
RE	DISCCART	-2500	1000	485
RE	DISCCART	-2500	1500	485.
RE	DISCCART	-2500	2000.	501.
RE	DISCCART	-2500.	2500.	501.
RE	DISCCART	-2000.	-2500	455
RE	DISCCART	-2000	-2000	458.
RE	DISCCART	-2000	-1500	457
RE	DISCCART	-2000	-1000.	453
RE	DISCCART	-2000.	-750	450
RE	DISCCART	-2000.	-500	448
RE	DISCCART	-2000	-400	448
RE	DISCCART	-2000	-300	448
RE	DISCCART	-2000	-200	
RE	DISCCART	-2000	-100.	
RE	DISCCART	-2000.	100.	466
RE	DISCCART	-2000	200	464
RE	DISCCART	-2000	300	465
RE	DISCCART	-2000	400	469.
RE	DISCCART	-2000.	500.	
RE	DISCCART		750	
RE	DISCCART	+ <b>·</b>	1000	478
RE	DISCCART	-2000	1500	
		-2000		
RE	DISCCART DISCCART		2000 2500	494 505.
RE	DISCCARI	-2000		
RE		-1500	-2500. -2000	448.
RE	DISCCART	-1500.		452
RE	DISCCART	-1500	-1500	455
RE	DISCCART	-1500	-1000	460
RE	DISCCART	-1500	-750.	454
RE	DISCCART	-1500	-500.	454
RE	DISCCART	-1500.	-400.	454.
RE	DISCCART	-1500	-300.	454
RE	DISCCART	-1500	-200	454.
RE	DISCCART	-1500.	-100	454
RE	DISCCART	-1500.	100	454
RE	DISCCART	-1500.	200	454
RE	DISCCART	-1500	300	456
RE	DISCCART	-1500	400	463.
RE	DISCCART	-1500.	500	467

RE	DISCCART	-1500.	750.	
RE	DISCCART	-1500.	1000.	
RE	DISCCART	-1500	1500.	
RE	DISCCART	-1500	2000.	487.
RE	DISCCART	-1500	2500.	497.
$\mathbf{RE}$	DISCCART	-1000	-2500.	448.
RE	DISCCART	-1000.	-2000	448
$\mathbf{RE}$	DISCCART	-1000.	-1500	453
RE	DISCCART	-1000.	-1000	453
RE	DISCCART	-1000	-750	453
RE	DISCCART	-1000	-500	453
$\mathbf{RE}$	DISCCART	-1000	-400.	453
$\mathbf{RE}$	DISCCART	-1000	-300	456
RE	DISCCART	-1000	-200	455
RE	DISCCART	-1000	-100	455.
RE	DISCCART	-1000	100.	454
RE	DISCCART	-1000.	200.	454
RE	DISCCART	-1000.	300	454
RE	DISCCART	-1000.	400	454
RE	DISCCART	-1000.	500	455.
RE	DISCCART	-1000	750	467
RE	DISCCART	-1000.	1000.	479
RE	DISCCART	-1000.	1500	482
RE	DISCCART	-1000.	2000	484
RE	DISCCART	-1000	2500	497.
RE	DISCCART	-750	-2500.	
RE	DISCCART	-750.	-2000	448.
RE	DISCCART	-750	-1500	454.
RE	DISCCART	-750	-1000	456.
RE	DISCCART	-750	-750.	
RE	DISCCART	-750	-500.	
RE	DISCCART	-750.	-400	
RE	DISCCART	-750	-300	460.
RE	DISCCART	-750	-200	
RE	DISCCART	-750	-100	
RE	DISCCART	-750	100	
RE	DISCCART	-750.	200.	
RE	DISCCART	-750	300.	454
RE	DISCCART	-750	400	455
RE	DISCCART	-750	500	457.
RE	DISCCART	-750.	750.	458
RE	DISCCART	-750.	1000.	474
RE	DISCCART	-750.	1500.	487
RE	DISCCART	-750.	2000.	487.
RE	DISCCART	-750	2500.	499
RE	DISCCART	-500	-2500.	448.
RE	DISCCART		-2000.	448.
	DISCCART	-500.	-2000 -1500	448. 457
RE		-500.		
RE	DISCCART	-500.	-1000	466
RE	DISCCART	-500.	-750	457.
RE	DISCCART	-500	-500.	457.
RE	DISCCART	-500.	-400	457
RE	DISCCART	-500	-300	457
RE	DISCCART	-500	-200	456

RE	DISCCART	-500.	-100	455
RE	DISCCART	-500.	100	454
RE	DISCCART	-500.	200	454
RE	DISCCART	-500	300	454.
RE	DISCCART	-500	400.	454.
RE	DISCCART	-500,	500	455
RE	DISCCART	-500	750	455.
RE	DISCCART	-500	1000	463.
RE	DISCCART	-500	1500.	484
$\mathbf{RE}$	DISCCART	-500	2000.	485
RE	DISCCART	-500	2500.	501
RE	DISCCART	-400	-2500	448
RE	DISCCART	-400.	-2000	450
RE	DISCCART	-400	-1500	465
RE	DISCCART	-400	-1000.	457
RE	DISCCART	-400.	-750	457
RE	DISCCART	-400.	-500	457
RE	DISCCART	-400.	-400.	
RE	DISCCART	-400	-300.	455
RE	DISCCART	-400.	-200	455
RE	DISCCART	-400.	-100	455
RE	DISCCART	-400.	100	454
RE		-400	200	
	DISCCART		300	
RE		-400		
RE	DISCCART	-400	400.	
RE	DISCCART	-400	500.	
RE	DISCCART	-400.	750.	457
RE	DISCCART	-400	1000.	463
RE	DISCCART	-400	1500	475.
RE	DISCCART	-400	2000.	485.
RE	DISCCART	-400	2500.	499
RE	DISCCART	-300	-2500	448
$\mathbf{RE}$	DISCCART	-300	-2000	457
$\mathbf{RE}$	DISCCART	-300	-1500	467
RE	DISCCART	-300	-1000,	458
$\mathbf{RE}$	DISCCART	-300	-750.	458.
RE	DISCCART	-300	-500	462
RE	DISCCART	-300	-400	459
RE	DISCCART	-300	-300	455
RE	DISCCART	-300	-200.	454
RE	DISCCART	-300	-100.	454.
RE	DISCCART	-300.	100	454.
RE	DISCCART	-300.	200	454.
RE	DISCCART	-300.	300	454
RE	DISCCART	-300.	400	454
RE	DISCCART	-300.	500	454
RE	DISCCART	-300	750	462
RE	DISCCART	-300	1000	466
RE	DISCCART	-300	1500	468
RE	DISCCART	-300	2000	487
RE	DISCCART	-300	2500.	495.
RE	DISCCART	-200	-2500	448
RE	DISCCART	-200	-2000	462
RE	DISCCART	-200	-1500	467
КĘ	DISCORT	-200	- TOOO	107

RE	DISCCART	-200.	-1000	461.
RE	DISCCART	-200.	-750	462.
RE	DISCCART	-200	-500.	464.
RE	DISCCART	-200	-400.	462.
RE	DISCCART	-200	-300	457.
RE	DISCCART	-200.	-200	456.
RE	DISCCART	-200	-100	457.
RE	DISCCART	-200	100	457.
RE	DISCCART	-200	200	457
RE	DISCCART	-200	300.	457
RE	DISCCART	-200	400.	456
RE	DISCCART	-200	500	454
RE	DISCCART	-200	750	460
RE	DISCCART	-200	1000	465
RE	DISCCART	-200	1500.	470
RE	DISCCART	-200	2000.	482
RE	DISCCART	-200	2500	490
RE	DISCCART	-100	-2500	448
RE	DISCCART	-100	-2000	458
RE	DISCCART	-100	-1500	469
RE	DISCCART	-100.	-1000.	464
RE	DISCCART	-100.	-750	467
RE	DISCCART	-100.	-500	463
RE	DISCCART	-100.	-400	463
RE	DISCCART	-100	-300	457.
RE	DISCCART	-100	-200.	457.
RE	DISCCART	-100	-100.	457.
RE	DISCCART	-100,	100.	457.
RE	DISCCART	-100.	200.	458.
RE	DISCCART	-100	300.	458
RE	DISCCART	-100	400.	460.
RE	DISCCART	-100.	500	454
RE	DISCCART	-100	750	460
RE	DISCCART	-100	1000	463
RE	DISCCART	-100	1500	470
RE	DISCCART	-100	2000	482
$\mathbf{RE}$	DISCCART	-100	2500.	483.
RE	DISCCART	100.	-2500.	448.
RE	DISCCART	100.	-2000	458.
RE	DISCCART	100.	-1500	468.
RE	DISCCART	100.	-1000	476.
RE	DISCCART	100.	-750	482
RE	DISCCART	100.	-500.	474
RE	DISCCART	100.	-400	475
RE	DISCCART	100.	-300	475
RE	DISCCART	100	-200	466
RE	DISCCART	100	-100	466
RE	DISCCART	100	100	466
			200	466 466
RE	DISCCART	100		
RE	DISCCART	100	300	466
RE	DISCCART	100	400	459
RE	DISCCART	100.	500.	457
RE	DISCCART	100.	750	456
RE	DISCCART	100	1000	470

RE	DISCCART	100	1500	476.
RE	DISCCART	100.	2000	486
RE	DISCCART	100	2500	478
RE	DISCCART	200	-2500	448
RE	DISCCART	200	-2000	458
$\mathbf{RE}$	DISCCART	200	-1500.	468
$\mathbf{RE}$	DISCCART	200	-1000.	477
$\mathbf{RE}$	DISCCART	200	-750.	480
$\mathbf{RE}$	DISCCART	200.	-500	478
RE	DISCCART	200.	-400	477
RE	DISCCART	200	-300	477
RE	DISCCART	200	-200	470
RE	DISCCART	200.	-100.	470
RE	DISCCART	200.	100	470
RE	DISCCART	200	200	470.
RE	DISCCART	200	300	468
RE	DISCCART	200	400	462.
RE	DISCCART	200.	500.	457
RE	DISCCART	200	750	455
RE	DISCCART	200	1000	465
RE	DISCCART	200	1500	474.
RE	DISCCART	200	2000	483.
RE	DISCCART	200	2500	476
RE	DISCCART	300	-2500	452
RE	DISCCART	300	-2000	468
RE	DISCCART	300	-1500	473.
RE	DISCCART	300	-1000.	482
RE	DISCCART DISCCART	300.	-750.	483
RE RE		300	-500 -400	477
	DISCCART	300		477
RE	DISCCART	300.	-300	476
RE	DISCCART	300.	-200.	474
RE	DISCCART	300.	-100	475
RE	DISCCART	300	100	473
RE	DISCCART	300	200	470
RE	DISCCART	300	300	467
RE	DISCCART	300.	400	463
RE	DISCCART	300.	500.	457.
RE	DISCCART	300.	750.	454.
RE	DISCCART	300.	1000	462
RE	DISCCART	300	1500	476
RE	DISCCART	300	2000	477
RE	DISCCART	300	2500	474
RE	DISCCART	400	-2500	457.
RE	DISCCART	400	-2000	469.
RE	DISCCART	400.	-1500.	475
$\mathbf{RE}$	DISCCART	400.	-1000.	486
RE	DISCCART	400	-750	486.
$\mathbf{RE}$	DISCCART	400	-500	477
$\mathbf{RE}$	DISCCART	400	-400	476
RE	DISCCART	400.	-300	473.
RE	DISCCART	400.	-200	469.
RE	DISCCART	400	-100.	468.
RE	DISCCART	400	100	468

RE	DISCCART	400	200.	468
RE	DISCCART	400	300.	465
RE	DISCCART	400	400	462.
RE	DISCCART	400	500	455.
RE	DISCCART	400.	750	454
RE	DISCCART	400.	1000	454
RE	DISCCART	400	1500	468
RE	DISCCART	400.	2000	473
RE	DISCCART	400	2500	473.
RE	DISCCART	500	-2500.	462
RE	DISCCART	500	-2000	468
RE	DISCCART	500.	-1500.	478
RE	DISCCART	500.	-1000.	487
RE	DISCCART	500	-750	486.
RE				
	DISCCART	500	-500.	478.
RE	DISCCART	500.	-400	479.
RE	DISCCART	500	-300	481
RE	DISCCART	500	-200	481.
RE	DISCCART	500	-100	477.
RE	DISCCART	500	100	473
RE	DISCCART	500	200.	468
RE	DISCCART	500.	300	465
RE	DISCCART	500.	400	457
RE	DISCCART	500	500	454
RE	DISCCART	500	750	454
RE	DISCCART	500	1000	454.
RE	DISCCART	500.	1500	471
RE	DISCCART	500	2000	472
RE	DISCCART	500	2500	472
RE	DISCCART	750	-2500	462
RE	DISCCART	750	-2000	474.
RE	DISCCART	750.	-1500.	483
RE	DISCCART	750.	-1000	493
RE	DISCCART	750.	-750	488
RE	DISCCART	750.	~500	494
RE	DISCCART	750.	-400	494
RE	DISCCART	750.	-300.	487.
RE	DISCCART	750.	-200	487
RE	DISCCART	750	-100	484
RE	DISCCART	750	100	482
RE	DISCCART	750	200.	477.
RE	DISCCART	750	300	474
RE	DISCCART	750.	400.	472.
RE	DISCCART	750.	500	465.
RE	DISCCART	750.	750	458
RE	DISCCART	750	1000	454
RE	DISCCART	750	1500	457
RE	DISCCART	750	2000	464
RE	DISCCART	750	2500	473
RE	DISCCART	1000	-2500	464
RE	DISCCART	1000	-2000	480.
RE	DISCCART	1000.	-1500	482
RE	DISCCART	1000	-1000	501
RE	DISCCART	1000	~750	490

RE	DISCCART	1000.	-500	493
RE	DISCCART	1000.	-400	493
RE	DISCCART	1000.	-300	493
RE	DISCCART	1000.	-200	484.
RE	DISCCART	1000.	-100.	483
RE	DISCCART	1000.	100	483
RE	DISCCART	1000	200	481
RE	DISCCART	1000	300	477.
RE	DISCCART	1000	400	476.
$\mathbf{RE}$	DISCCART	1000	500.	472.
$\mathbf{RE}$	DISCCART	1000	750	467.
$\mathbf{RE}$	DISCCART	1000	1000.	463
$\mathbf{RE}$	DISCCART	1000.	1500	456
$\mathbf{RE}$	DISCCART	1000	2000	466
RE	DISCCART	1000	2500.	483
RE	DISCCART	1500.	-2500	455
RE	DISCCART	1500	-2000	473
RE	DISCCART	1500	-1500	481.
RE	DISCCART	1500	-1000.	487
RE	DISCCART	1500.	-750	492
RE	DISCCART	1500.	-500	487
RE	DISCCART	1500.	-400	487
RE	DISCCART	1500.	-300	486
RE	DISCCART	1500	-200	
RE	DISCCART	1500	-100.	
RE	DISCCART	1500	100.	
RE	DISCCART	1500.	200	483
RE	DISCCART	1500.	300	483
RE	DISCCART	1500	400	483.
RE	DISCCART	1500	500.	483
RE	DISCCART	1500	750	483
RE	DISCCART	1500	1000	476.
RE	DISCCART	1500	1500	468
RE	DISCCART	1500	2000	
RE	DISCCART	1500	2500.	
RE	DISCCART	2000		
RE	DISCCART			
RE		2000	-1500	473
RE	DISCCART	2000.	-1000	485
RE	DISCCART	2000 2000.	-750 -500	493
RE	DISCCART			493
RE	DISCCART	2000	-400	489
RE	DISCCART	2000.	-300	486
RE	DISCCART	2000.	-200	484
RE	DISCCART	2000.	~100	486
RE	DISCCART	2000.	100	486.
RE	DISCCART	2000	200	487
RE	DISCCART	2000	300	487
RE	DISCCART	2000	400.	487.
RE	DISCCART	2000	500.	487
RE	DISCCART	2000.	750	492
RE	DISCCART	2000	1000	487
RE	DISCCART	2000	1500.	470
RE	DISCCART	2000	2000.	464

	DISCCART	2000	2500 465
RE	DISCCART	2500	-2500. 454.
RE	DISCCART	2500	-2000. 473.
RE	DISCCART	2500	-1500. 468.
RE	DISCCART	2500	-1000. 483.
RE	DISCCART	2500	-750. 484.
RE	DISCCART	2500	-500 484
$\mathbf{RE}$	DISCCART	2500	-400 484
RE	DISCCART	2500	-300 484.
$\mathbf{RE}$	DISCCART	2500	-200. 484
$\mathbf{RE}$	DISCCART	2500	-100 484
$\mathbf{RE}$	DISCCART	2500.	100 489
RE	DISCCART	2500	200 494.
RE	DISCCART	2500.	300. 497
RE	DISCCART	2500	400 497
RE	DISCCART	2500	500 497
RE	DISCCART	2500	750 497
RE	DISCCART	2500	1000. 493.
RE	DISCCART	2500	1500. 484
RE	DISCCART	2500.	2000 473
RE	DISCCART		2500 468
RE	DISCCART		10000 475.
RE	DISCCART		~10000 475.
RE	DISCCART	00001	-10000. 475
RE	DISCCART	о. О.	10000 475
RE	DISCCART		
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RE	DISCCART	15000	
RE	DISCCART	15000	
RE	DISCCART	0	
RE	DISCCART	0.	15000. 475
RE	DISCCART		0 475
RE	DISCCART		0 475.
RE	DISCCART		
RE	DISCCART		-15000. 475.
RE	DISCCART	0	~17500 475
$\mathbf{RE}$	DISCCART	5000	-17500 475
$\mathbf{RE}$	DISCCART	10000	-17500. 475.
RE	DISCCART	15000.	-17500 475.
RE	DISCCART	-5000	-17500 475
RE	DISCCART	-10000	-17500 475
$\mathbf{RE}$	DISCCART	-15000	-17500 475
RE	DISCCART	20000.	20000 475
RE	DISCCART	20000.	-20000 475
RE	DISCCART	ο.	-20000 475.
RE	DISCCART	ο.	20000. 475
RE	DISCCART	-20000.	
RE	DISCCART	-20000.	
RE	DISCCART	2500	-5000 475
RE	DISCCART	2500	-7500 475
RE	DISCCART	2500	
RE	DISCCART	2500.	
RE	DISCCART	2500.	-15000. 475
RE	DISCCART	2500	-17500 475
	PICCENT	2000	T1200 F13

RE	DISCCART	2500	-20000	475.
RE	DISCCART	-5000	-2500	475.
RE	DISCCART	10000	-2500	475.
RE	DISCCART	15000	-2500.	475.
RE	DISCCART	20000	-2500	475
RE	DISCCART	-15000.	20000	475
RE	DISCCART	-10000	20000.	475
RE	DISCCART	-5000	20000.	475
RE	DISCCART	5000	20000.	475
$\mathbf{RE}$	DISCCART	10000	20000.	475
RE	DISCCART	15000	20000.	475
RE	DISCCART	-20000	15000.	475
RE	DISCCART	-10000.	15000.	475
RE	DISCCART	-5000	15000	475
RE	DISCCART	5000	15000.	475.
RE	DISCCART	10000	15000.	475
RE	DISCCART	20000	15000.	475
RE	DISCCART	-20000	10000	475
RE	DISCCART	-15000	10000	475
RE	DISCCART	-5000	10000	475.
RE	DISCCART	5000	10000.	475
RE	DISCCART	15000.	10000.	475
RE	DISCCART	20000.	10000.	475
RE	DISCCARI		5000.	475
	DISCCARI	-20000		
RE		-15000	5000.	475
RE	DISCCART	-10000	5000.	475.
RE	DISCCART	-5000	5000.	475
RE	DISCCART	0	5000	475
$\mathbf{RE}$	DISCCART	5000	5000	475
$\mathbf{RE}$	DISCCART	10000	5000	475
RE	DISCCART	15000	5000	475
RE	DISCCART	20000	5000	475.
RE	DISCCART	-20000	0.	475
RE	DISCCART	-10000.	0.	475
RE	DISCCART	-5000	0.	475
$\mathbf{RE}$	DISCCART	5000	0	475
RE	DISCCART	10000	0.	475
RE	DISCCART	20000.	0.	475.
RE	DISCCART	-20000.	-5000.	475
RE	DISCCART	-15000	-5000.	475
RE	DISCCART	-10000	-5000.	475
RE	DISCCART	-5000	-5000.	475.
RE	DISCCART	0	-5000	475
RE	DISCCART	5000	-5000	475.
RE	DISCCART	10000	-5000	475
RE	DISCCART	15000,	-5000.	475
RE	DISCCART	20000	-5000	475
RE	DISCCART	-20000.	-10000	475
RE	DISCCART	-15000.	-10000	475
RE	DISCCART	-15000.	-10000	475
RE	DISCCART	5000	-10000	475. 475
RE	DISCCART	15000.	-10000.	475.
RE	DISCCART	20000	-10000	475.
RE	DISCCART	-20000.	-15000.	475

RE DISCCART -10000 -15000. 475 RE DISCCART -5000 -15000 475 RE DISCCART 5000 -15000 475. RE DISCCART 10000 -15000 475 RE DISCCART 20000 -15000 475 RE DISCCART -15000. -20000 475. RE DISCCART -10000. -20000 475 RE DISCCART -5000. -20000 475. RE DISCCART 5000. -20000 475. RE DISCCART 10000 -20000 475. RE DISCCART 15000 -20000 475. RE FINISHED ** The MEteorology pathway begins here ME STARTING ** There are no on-site upper air data available, so assumed mixing heights ** were used The WDROTATE is used to convert the ** weather station wind directions (from which the wind is blowing) ** to the wind vector (direction toward which the wind is blowing) ** required by the ISCST2 model. There are gaps in the met data INPUTFIL ISCST294 DAT ANEMHGHT 10 METERS SURFDATA 94823 1994 KOALCAMP UAIRDATA 94823 1994 NOTAVAIL STARTEND 94 01 01 94 12 31 DAYRANGE 01/01-03/23 04/10-05/27 06/15-07/09 07/21-10/25 11/05-12/31 WDROTATE 180 ME FINISHED ** The OUtput pathway begins here OU STARTING ** RECTABLE will o/p high value summary for each receptor RECTABLE ALLAVE FIRST ** MAXTABLE will o/p overall maximum value summary tables MAXTABLE ALLAVE 50 ** MAXIFILE will o/p all occurrences of violations of a user-specified ** threshold, in this case the Cdn. Ambient Air Qual. Objective for ** carbon monoxide 1-hour 15 mg/Nm^3 (acceptable). MAXIFILE 1 STATION 15000.0 MAXICO FIL 21 MAXIFILE 1 OPENPIT 15000 0 MAXICO FIL 21 ** PLOTFILE will o/p to a file suitable for import into a graphics ** package, in this case Surfer for Windows PLOTFILE 1 STATION 1ST K2007CO.FST 22 PLOTFILE 1 OPENPIT 1ST K2007CO FST 22 OU FINISHED

NWT Diamonds Project

Calculations and Assumptions Used to Prepare Aircraft Noise Contours for BHP Diamonds Project Koala Airport

> Prepared for: Rescan Environmental Services Ltd. Vancouver, B.C.

> > File No: 1900-95A 95 05 09



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#### Introduction

This report describes the assumptions made and the data used for preparation of aircraft noise contours for the Koala Airport at the BHP Diamonds Project, N.W. Territories. The raw data used for the contours was provided to Barron Kennedy Lyzun & Associates Ltd. by BJP Diamonds Inc. to Barron Kennedy Lyzun, Acoustical Consultants in early May, 1995.

The sets of contours produced include Noise Exposure Forecasts (NEF), Equivalent Sound Levels (Leq) and Sound Exposure Levels (SEL). The NEF contours were prepared using the Transport Canada NEF Computer Program, version 1.7. The Leq and SEL contours were prepared using the Federal Aviation Administration, Integrated Noise Model (INM) version 3.10 with INM Database Version 10. NEF contours were plotted by hand using screen prints of the contours. Leq and SEL contours were plotted using the INM - PC Version Contour Plotting Program, Release 2.

#### **Operating Scenarios**

The numbers and types of aircraft expected to visit the Koala airport during various stages of the project are summarized in Table 1. The 1,950 m long unpaved runway was built to accommodate the aircraft listed in this table. During the construction period, the heaviest usage will be during the summer months (mid May to mid September) when the hours of daylight are long and the runway is free of snow. During the summer months, up to 16 flights per day may arrive and take off but on an average summer day, the airport may receive about six flights. Only three flights per week are expected throughout the winter months during construction. During the operations period, air flights will be more consistent year round with up to eight flights per day and an average of approximately three flights per day. Based upon these estimated numbers, the Peak Planning Day used to compute NEFs is assumed

Aircraft	Annual Trips
Construction Period (Contractors)	
B727 or B737 Combi-Jet	148
Hercules C130	109
DC4/DC3/HS748/C46 Prop Cargo	149
Twin Otter, etc.	14
Gulf Stream	72
Total for Construction Period	492
Preproduction Period	
B727 or B737 Combi-Jet	170
B727 or B737 Cargo Jet	20
Hercules C130	20
DC4/DC3/HS748/C46 Prop Cargo	48
Twin Otter, etc.	172
Total for Preproduction Period	430
Operations Period	
(1998-2006 - Years 1-9)	
B727 or B737 Combi-Jet	208
B727 or B737 Cargo Jet	15
DC4/DC3/HS748/C46 Prop Cargo	52
Twin Otter, etc.	208
Small Jets	26
Total for Years 1-9	509
(2007-Onwards - Years 10-25)	
B727 or B737 Combi-Jet	260
B727 or B737 Cargo Jet	20
DC4/DC3/HS748/C46 Prop Cargo	72
Twin Otter, etc.	292
Small Jets	26
Total for Years 10-25	670

### Table 1 Anticipated Numbers of Aircraft Trips to Site

to be 8 flights (16 movements) and the Average Day used to compute Leqs is assumed to be 3 flights (6 movements).

For the purpose of predicting airport noise contours, the aircraft types and numbers indicated in Table 1 for years 2007 and beyond have been assumed as they represent a worst case scenario. The type of large jet (Boeing 727 or Boeing 737) used will depend upon the carrier contracted to serve the airport. As the 737 is significantly quieter than the 727, two sets of contours have been prepared, one for each type of jet.

#### **Operating Assumptions**

As noted above 16 movements per day are assumed for the Peak Planning Day and 6 movements per day are assumed for the Average Day. In both cases these are estimates used in the absence of any more reliable information. For the aircraft type mix used in the contour preparation, it is assumed that the mix is proportional to the number of aircraft flights as indicated below.

Aircraft Type	<u>Scenario 1</u>	<u>Scenario 2</u>
727 Cargo or Combi-Jet	41.8 %	0.0 %
737 Cargo or Combi-Jet	0.0 %	41.8 %
C46/DC3/DC4/HS748	10.7 %	10.7%
Twin Otter (DHC-6)	43.6 %	43.6 %
Small jets	3.9 %	3.9%

It is assumed for the purposes of modelling that:

The 727 Combi-jet is best represented by data for the B-727-200 with JT8D-17 engines.

The 737 Cargo jet is best represented by data for the B-737 with JT8D-7 engines.

The Twin Otter is included in the NEF and INM databases.

The C46/DC3/DC4/HS748 aircraft class of movements has been modeled using a single aircraft type. The DC-3 and HS748 are represented in the NEF and INM databases but the C46 and DC-4 aircraft are not. It is assumed that this series of heavy twin engine propeller aircraft is best represented by the DC-3. Use of the DC-6, which is included in the database

likely overestimates the noise energy produced. Use of HS-748 data is likely not representative. The following text explains more.

The C-46 is a cargo/passenger aircraft equipped with two Pratt & Whitney R-2800-51M1, 2000 hp piston engines and has performance specifications of 48,000 lb. maximum takeoff weight and 162 knot cruise speed.

The DC-4 is a cargo/passenger aircraft equipped with two Pratt & Whitney R-2000-2SD-13G, 1450 hp radial piston engines and has performance specifications of 73,000 lb. maximum takeoff weight and 177 knot cruise speed. Transport Canada recommends, in their memorandum *Technical Note # 4: New List of NEF Aircraft Coding Equivalencies*, coding the DC-4 as a DC-6.

The DC-6 was built as an enlarged, pressurized successor to the DC-4. It is a 48-52 passenger aircraft equipped with four Pratt & Whitney R-2800-CB-16, 2400 hp radial piston engines and has performance specifications of 107,000 lb. maximum takeoff weight and 274 knot cruise speed. As the DC-6 is substantially larger and has twice the number of engines of the DC-4, it can be expected that contours produced using the DC-6 as the modeled aircraft type will be over estimates.

The HS-748 is a cargo/passenger aircraft equipped with two Rolls-Royce Dart Rda7 Mk 532-2L or -2S, 2280 shp turboprop engines and has performance specifications of 44,495 lb. maximum takeoff weight and 242 knot cruise speed. As this aircraft is equipped with turboprop engines while the remaining aircraft are equipped with piston engines, this aircraft's data is likely not a good representative of the data fro the remaining aircraft in this group.

The DC-3 is a cargo/passenger aircraft equipped with two Pratt & Whitney R-1830-90C/D, 1200 hp radial piston and has performance specifications of 28,000 lb. maximum takeoff weight and 168 knot cruise speed.

The "small jets" aircraft type is best represented by data for the Gulfstream G2B which is one of the largest "small jets" and one which could be used frequently at this airport.

#### **Airport Physical Data**

The airport consists of a single unpaved runway labelled 02-20 of length 1,950 m (6400 ft). The runway is oriented approximately 23 degrees to east of True North. There are no significant obstructions in the area that would force special aircraft operating procedures to be used. The altitude level of the runway is 455 m (approximately 1540 ft). Based on meteorological data supplied in MTEMPS Chart 1 of the Biophysical Setting section of the Environmental Impact Statement (EIS), the modelling airport temperature is assumed to be 11°C. This corresponds to a July-August mean temperature to be expected during airport maximum activity time periods.

The airport is located approximately 305 km north-east of Yellowknife. This distance is less than 200 nm and falls into the aircraft Stage Length category of 1 (Stage 1 covers 0-500 nm flight distances.) The airport is located approximately 1020 km (551 nm) north of Edmonton. This distance falls into the aircraft Stage Length category of 2. As it is close to the boundary between Stage Length 1 and 2 of 500 nm, for the purpose of modelling, all departures have been assumed to be of Stage Length 1.

#### **Aircraft Operating Procedures**

The location of the airport is such that most flights will arrive from a southerly direction and depart in a southerly direction. The ramp area of the airport is located at the north end of the runway. Operationally, this makes the use of Runway 02 for arrivals and Runway 20 for departures the most convenient. Additionally, the location of the mine camp to the north west of the airport makes the use of Runway 02 for arrivals and Runway 20 for departures preferable for minimizing noise impact. As mentioned earlier, there are no significant obstructions which force the use of special aircraft operating procedures. It has been indicated that the use of Noise Abatement Procedures (NAP) at the airport would be supported by the mine operators. Therefore it has been assumed that for the preparation of the aircraft noise contours, the Runway 02 will be used for arrivals and Runway 20 will be used for departures. It is assumed that these preferential runway procedures will be used as wind conditions permit and that the maximum tailwind component to accepted will be 5 knots. Based on these assumptions and the wind rose data supplied, Runway 02 is available 77% of the time for landings and Runway 20 is available 81% of the time for departures. The actual wind rose calculations are provided in Appendix A.

For the purposes of the noise contour preparation, all departures are assumed to be straight-out and all arrivals are assumed to be straight-in (3° glideslope). Any circling will be to the east of the runway for noise abatement reasons. Close into the airport, these assumptions are consistent with information provided by the air carriers operating in the area and Transport Canada.

#### **Day-Night Movement Distribution**

For the purposes of preparing the aircraft NEF contours it has been assumed that all movements occur at night. The rationale for this is that the purpose of the contours is, in part, to determine aircraft noise impact on the worker housing. As the mine will be operating 24 hours per day, at any given time, there are likely to be workers sleeping. For NEF contours, night-time movements are effectively equal to 16.67 day-time movements; a 12.2 dB penalty. No penalty for night-time movements is applied to the Leq contours.

#### Aircraft Movement Input Data Sets

For all of the NEF and Leq contour plots, the same basic input data is used for aircraft movements. The major difference between the two data sets is that the NEF uses Peak Planning Day movements while the Leq data uses Average Day movements. The remaining differences consist only of scaling and calculation area variances. The input data are summarized in the spreadsheets attached as Appendix B.

#### **NEF Plots**

The NEF plots attached show the NEF 25, 30, 35 and 40 contours plotted to a scale of 1:150,000, 1:50,000 and 1:15,000. A sample input data set is attached as Appendix C. Only the 1:15,000 contours have been overlaid on background maps as suitable maps at other scales were not available when this report was completed. On the NEF contour plots, North is to the top right-hand

corner. That is, aircraft movements left to right are operating on Runway 02 and aircraft movements right to left are operating on Runway 20.

#### Leq Plots

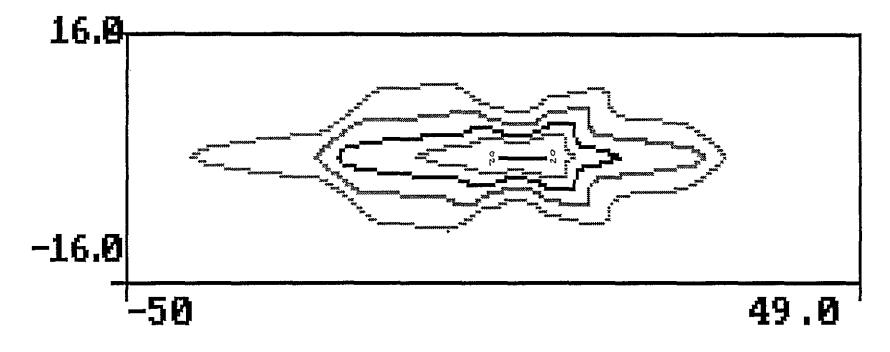
The Leq plots attached show the Leq 45 through 65 dBA contours at 1:50,000 and 1:15,000 scales. These plots were generated using the FAA Integrated Noise Model. For the 1:15,000 scale contour both a traced contour over a map and the raw INM Program output contour are provided. On the Leq contour plots, North is to the top right-hand corner. That is, aircraft movements left to right are operating on Runway 02 and aircraft movements right to left are operating on Runway 20. One of the INM Program input data sets is provided in Appendix D.

#### SEL Plots

Sound Exposure Level (SEL) plots for all the aircraft types have been generated using the FAA Integrated Noise Model. These plots show the SEL 80, 90 and 100 dBA contours for departures and arrivals. Both departures and arrivals operate in a left to right direction on these plots. An additional plot has been provided showing a 727 Stage 2 departure. This shows the effects of the additional weight required for the longer flight. Scales for all the SEL contour plots are 1:50,000. A sample input INM Program input data set is attached as Appendix E.

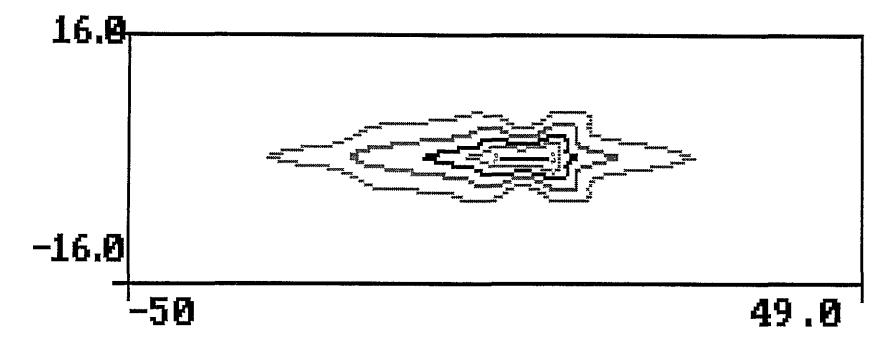
NEF, Leq and SEL Noise Contour Plots





Scale: 1:150,000 NEF Contours: 25, 30, 35, 40 Scenario 1: B727 Jets

## NWT DIAMONDS AIRPORT NEF - SCEN 2 - R2

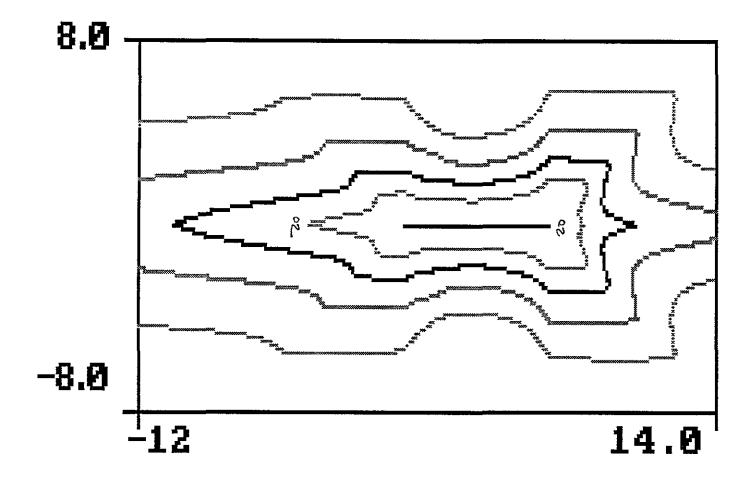


Scale: 1:150,000 NEF Contours: 25, 30, 35, 40 Scenario 2: B737 Jets

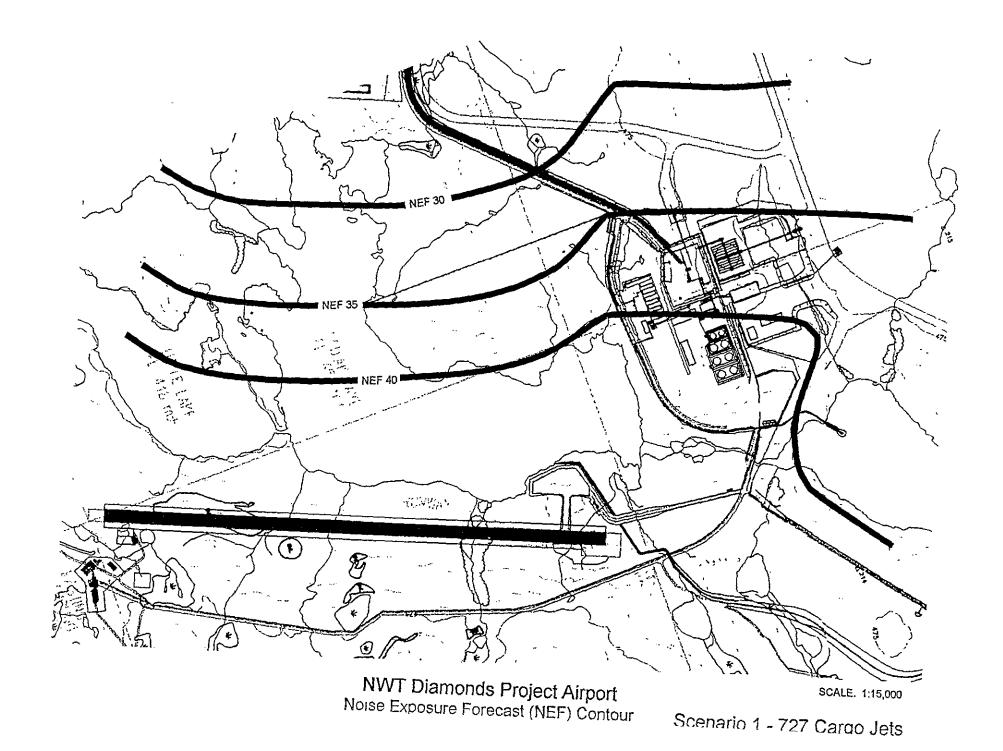
# NWT DIAMONDS AIRPORT NEF - SCEN 1-R2 8.0 õ 0 N -8.0 -12 14.0

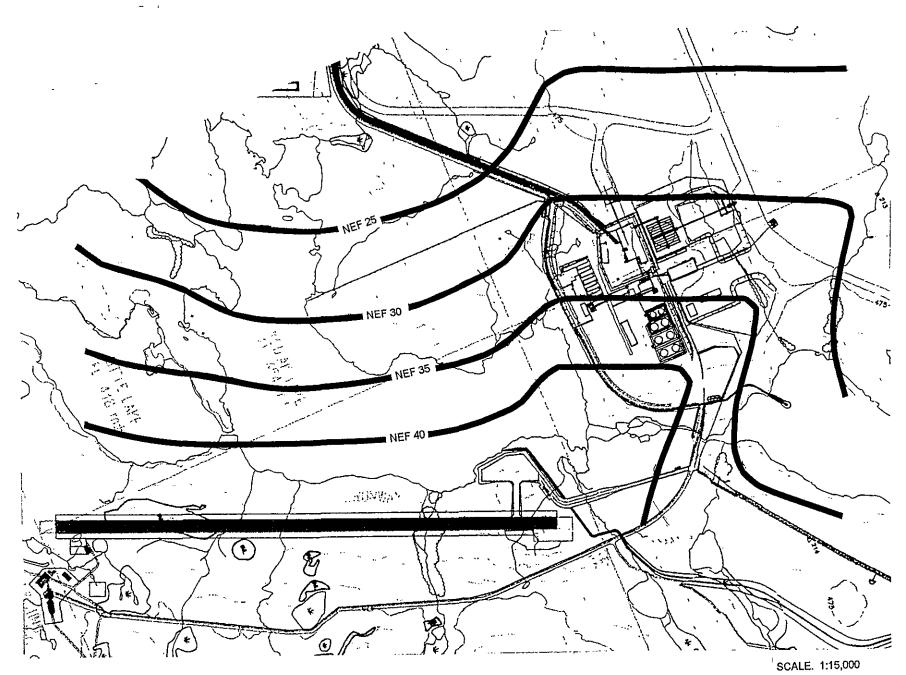
Scale: 1:50,000 NEF Contours: 25, 30, 35, 40 Scenario 1: B727 Jets

## NUT DIAMONDS AIRPORT NEF - SCEN 2-R2



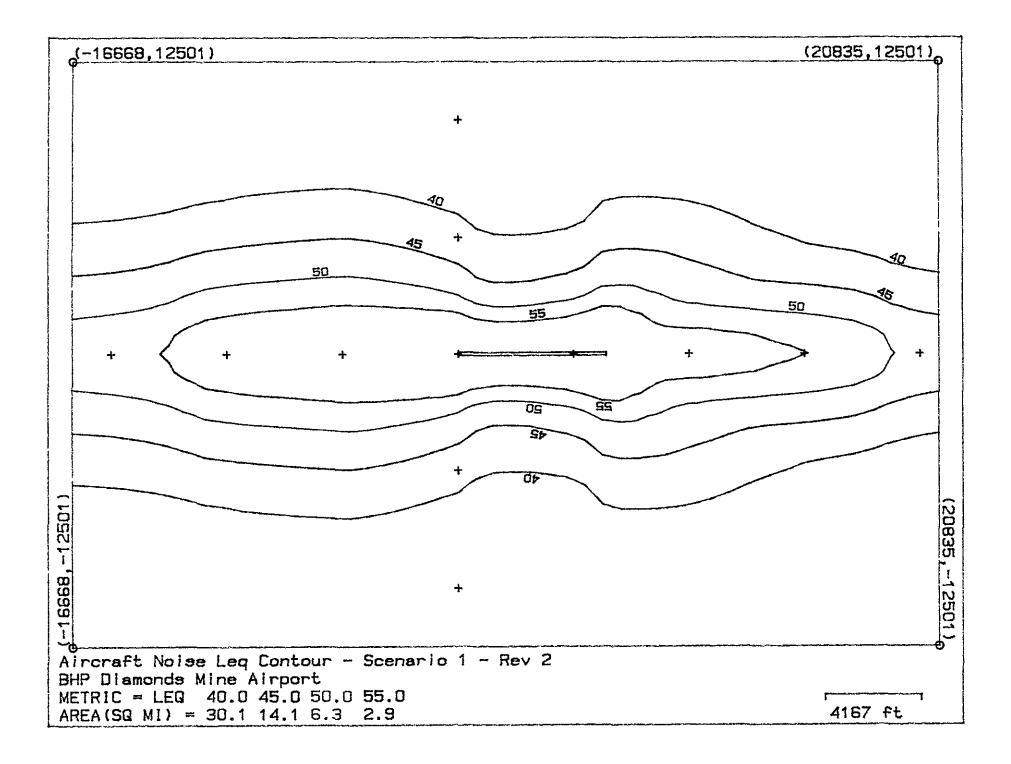
Scale: 1:50,000 NEF Contours: 25, 30, 35, 40 Scenario 2: B737 Jets

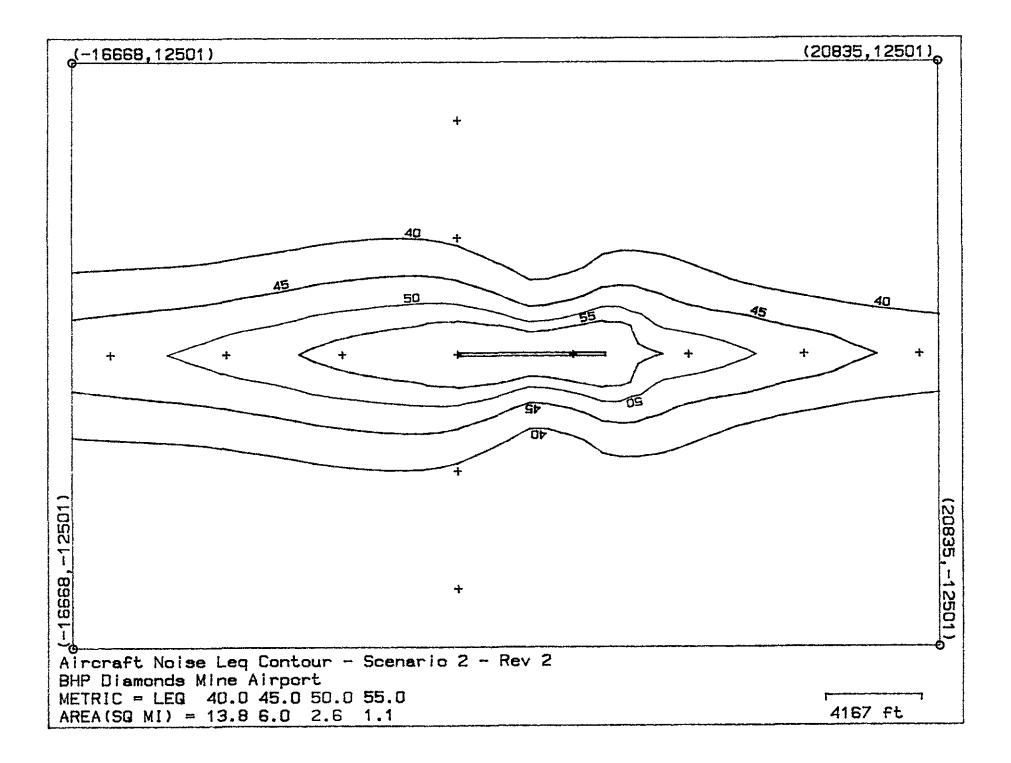


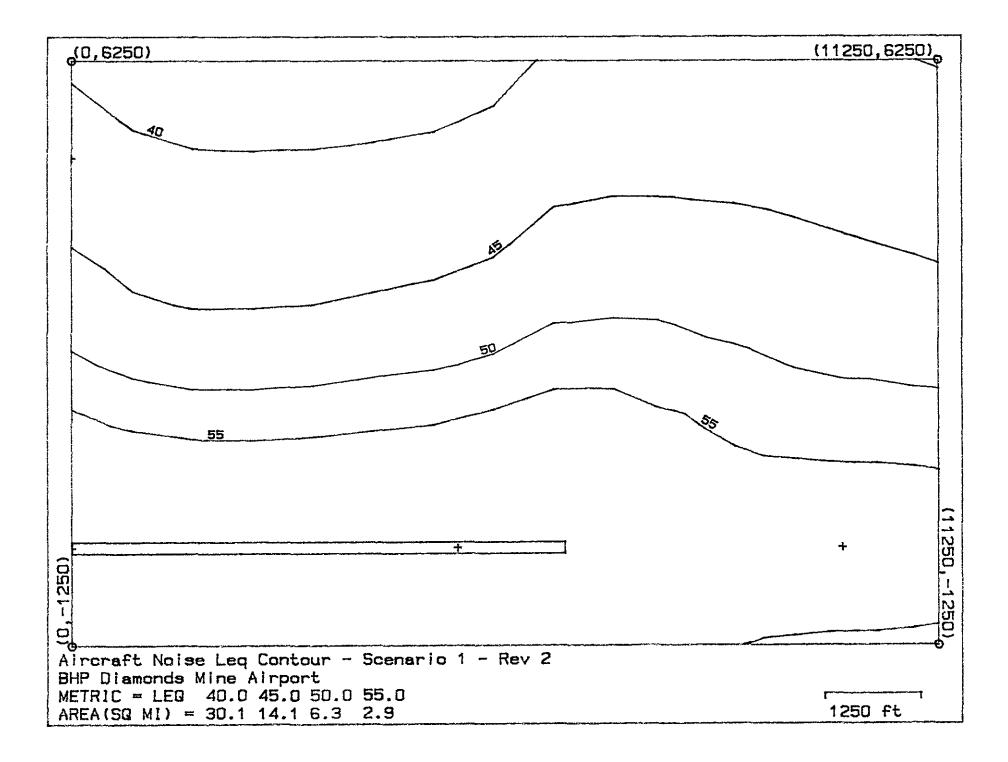


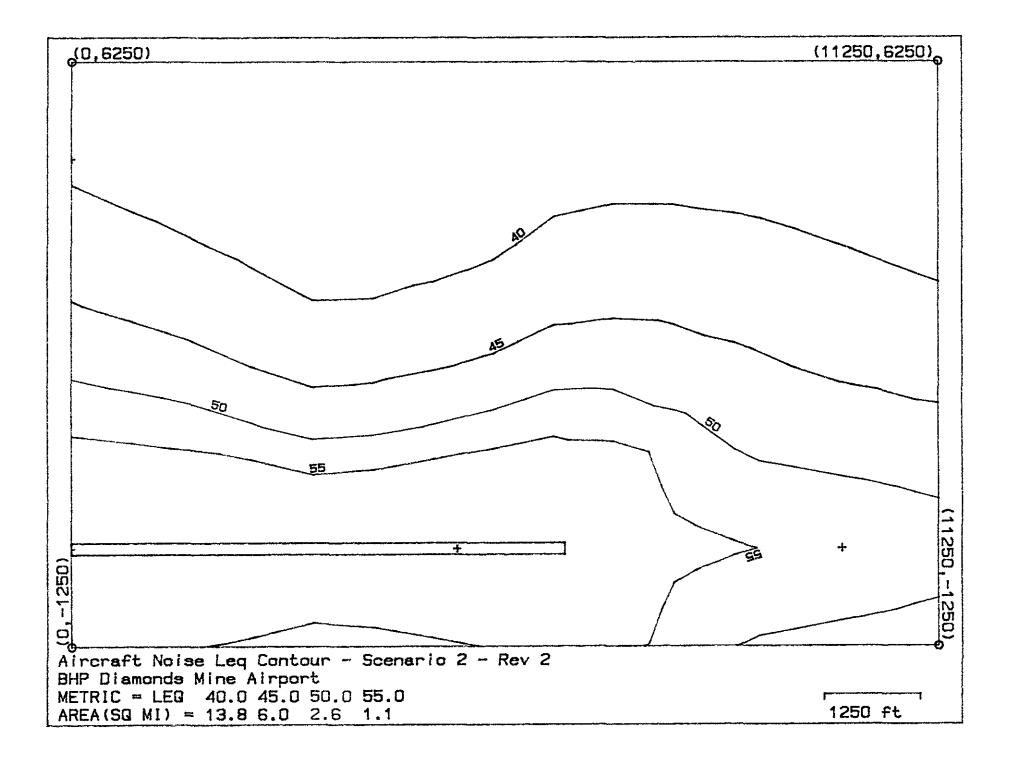
NWT Diamonds Project Airport Noise Exposure Forecast (NEF) Contour

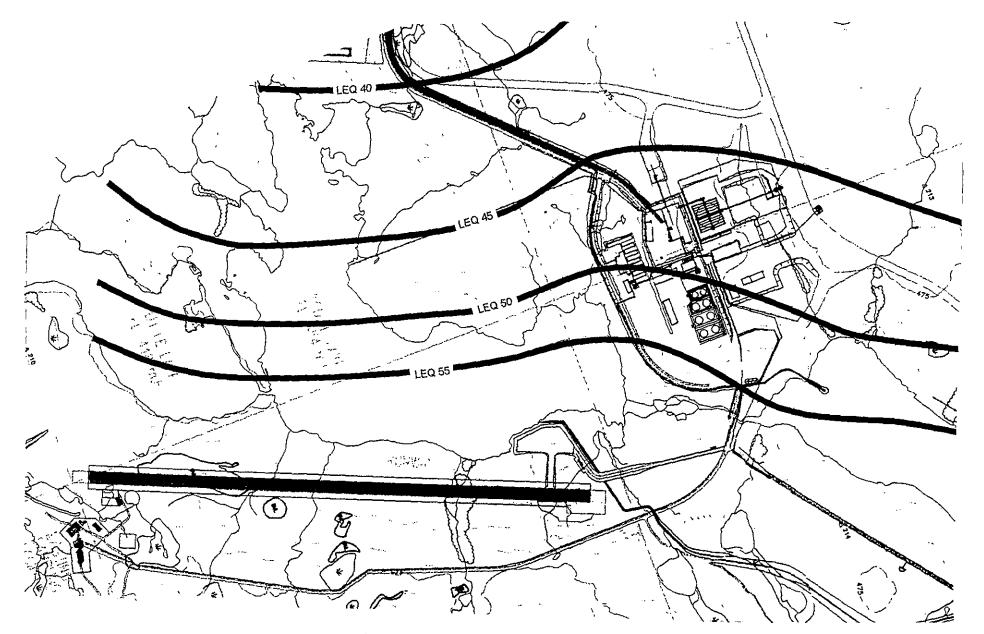
Scenario 2 - 737 Cargo Jets







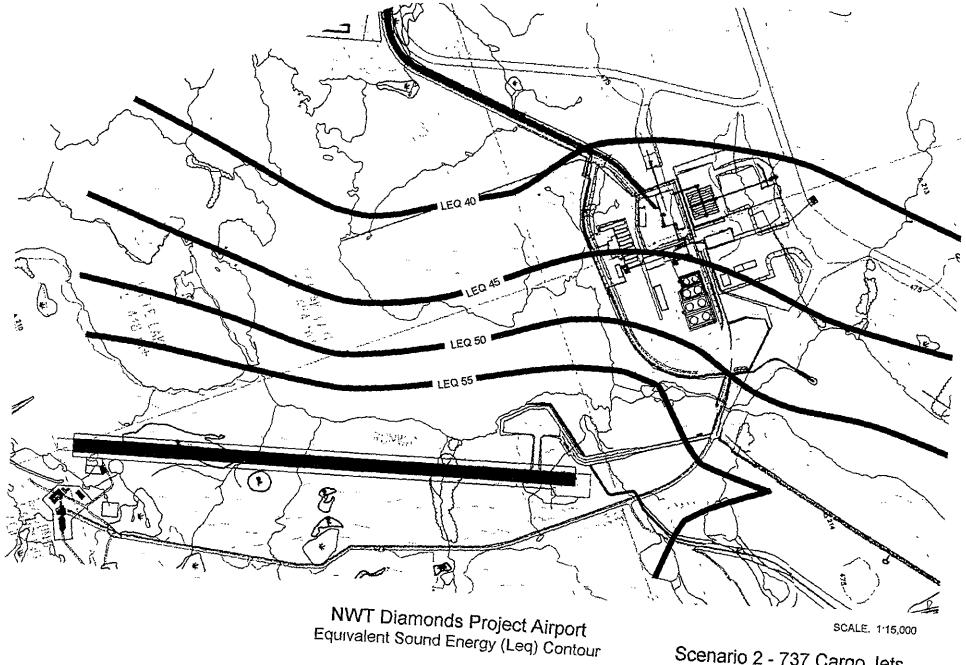




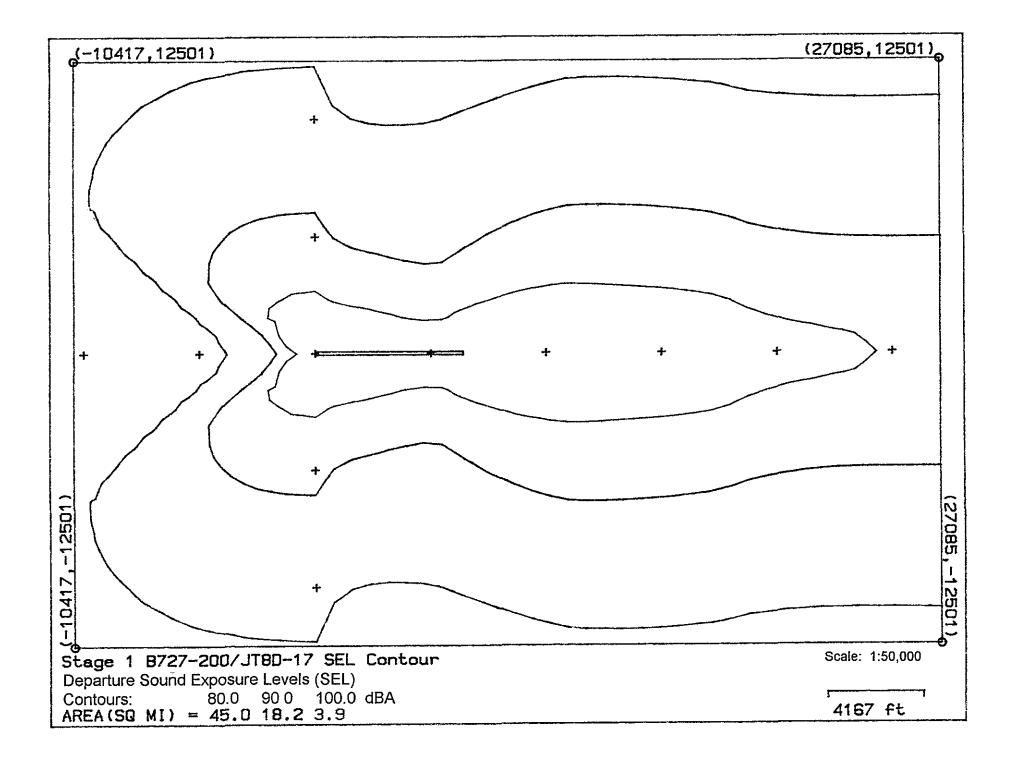
NWT Diamonds Project Airport Equivalent Sound Energy (Leq) Contour

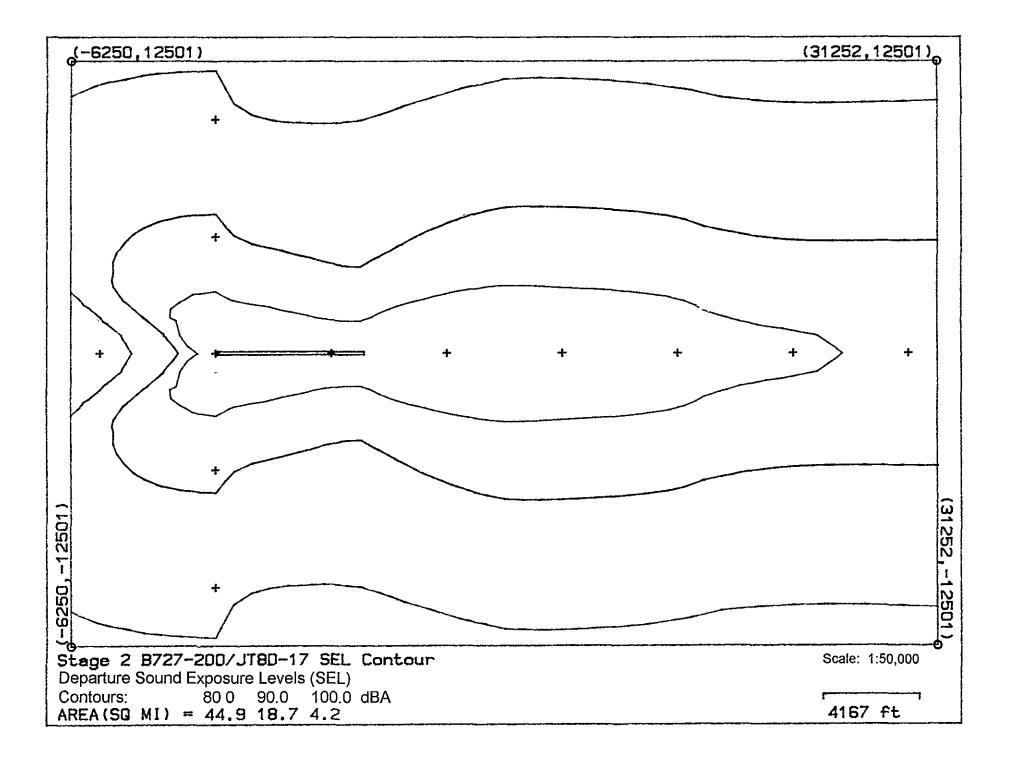
SCALE. 1:15,000

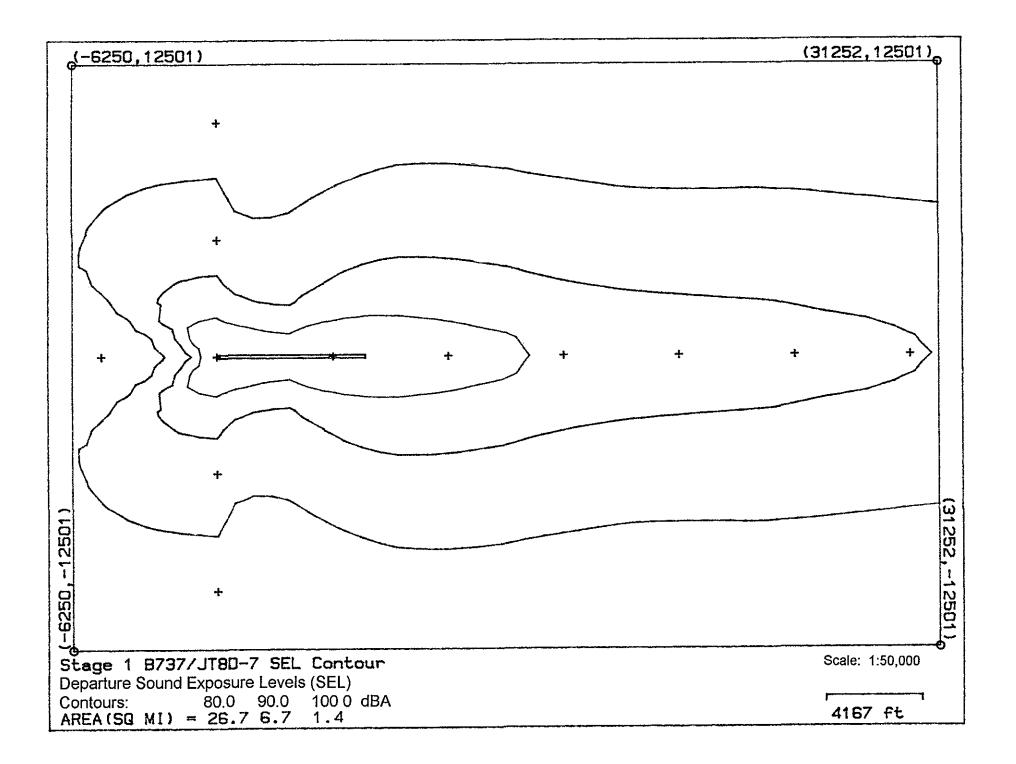
Scenario 1 - 727 Cargo Jets

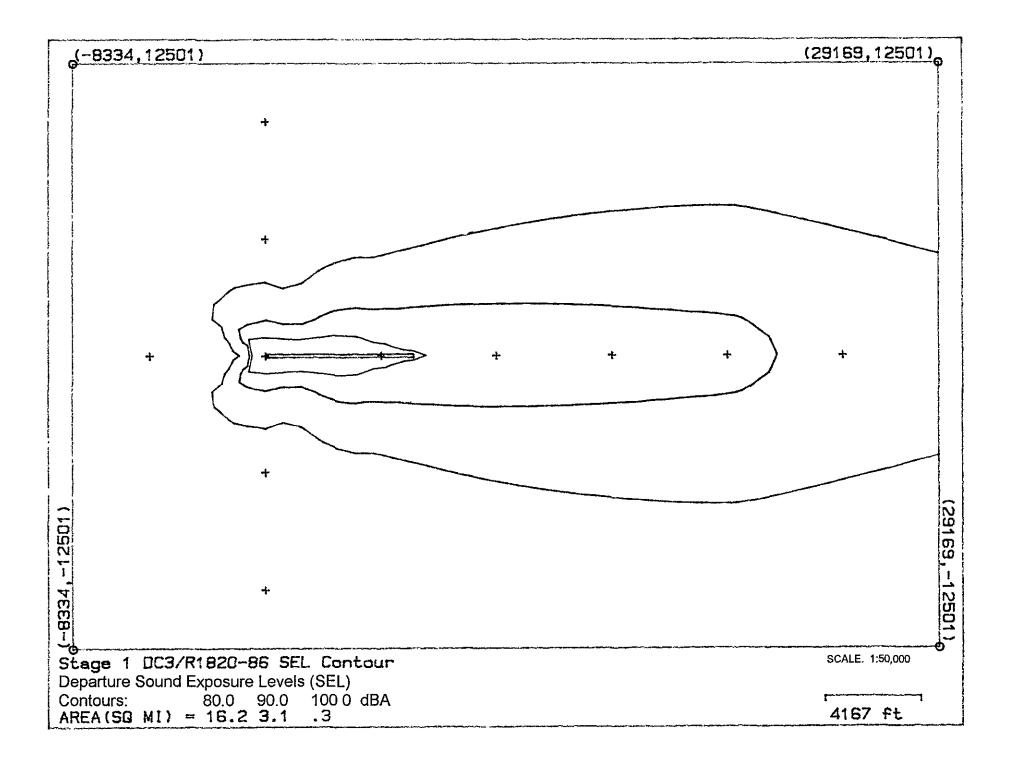


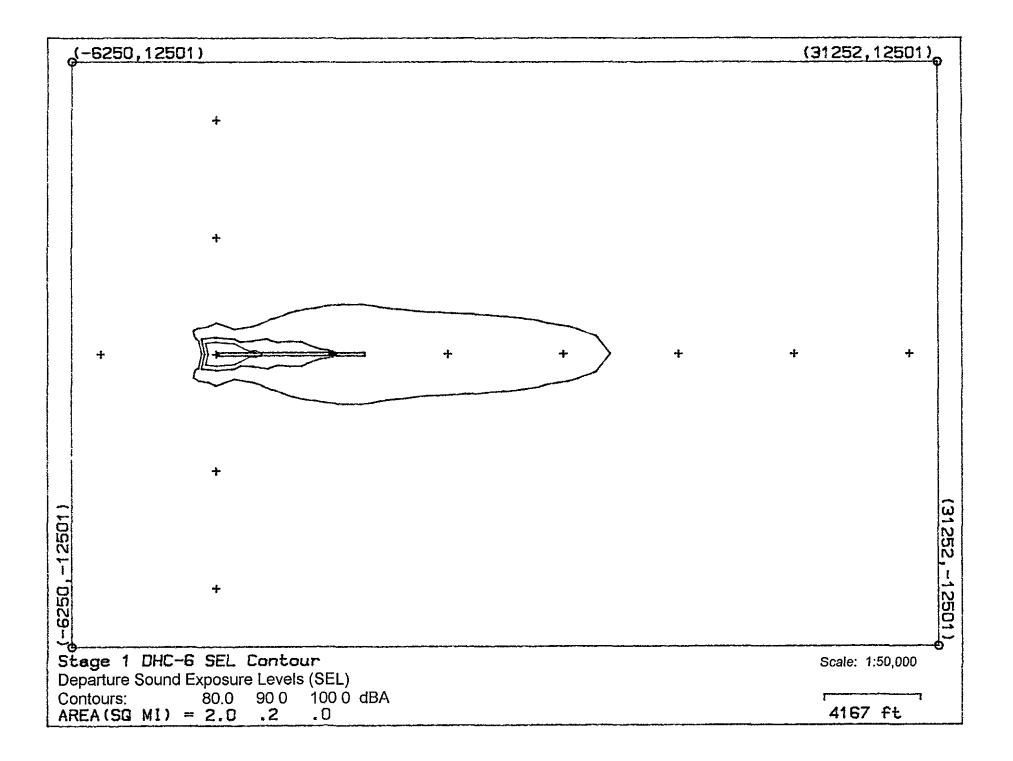
Scenario 2 - 737 Cargo Jets

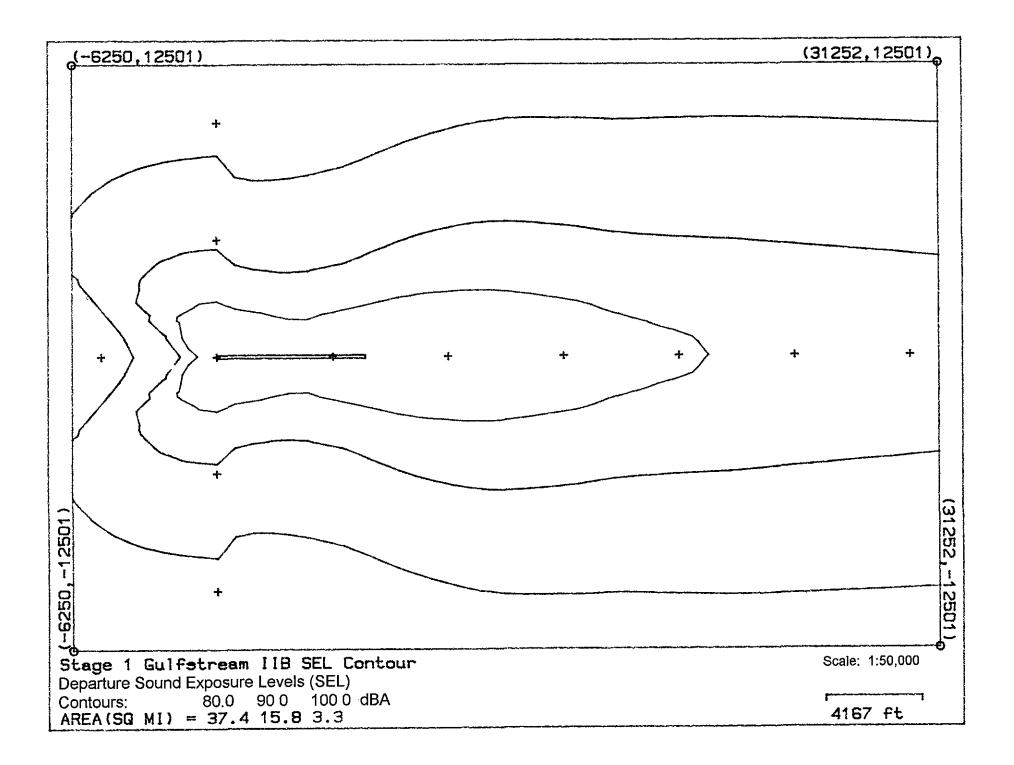


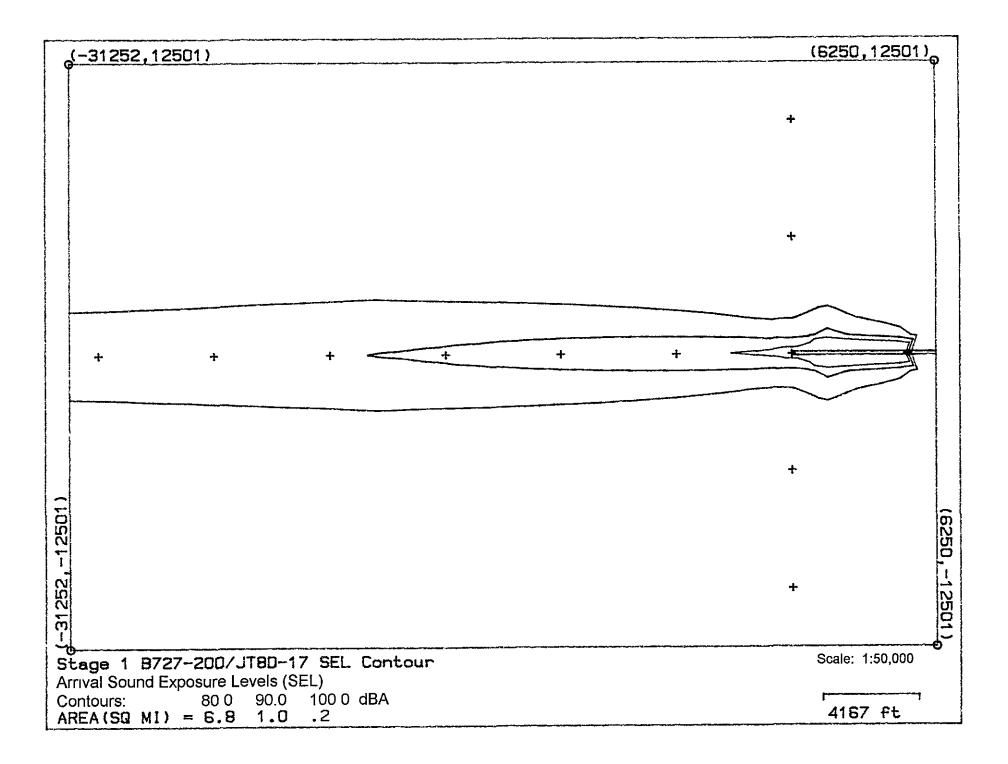


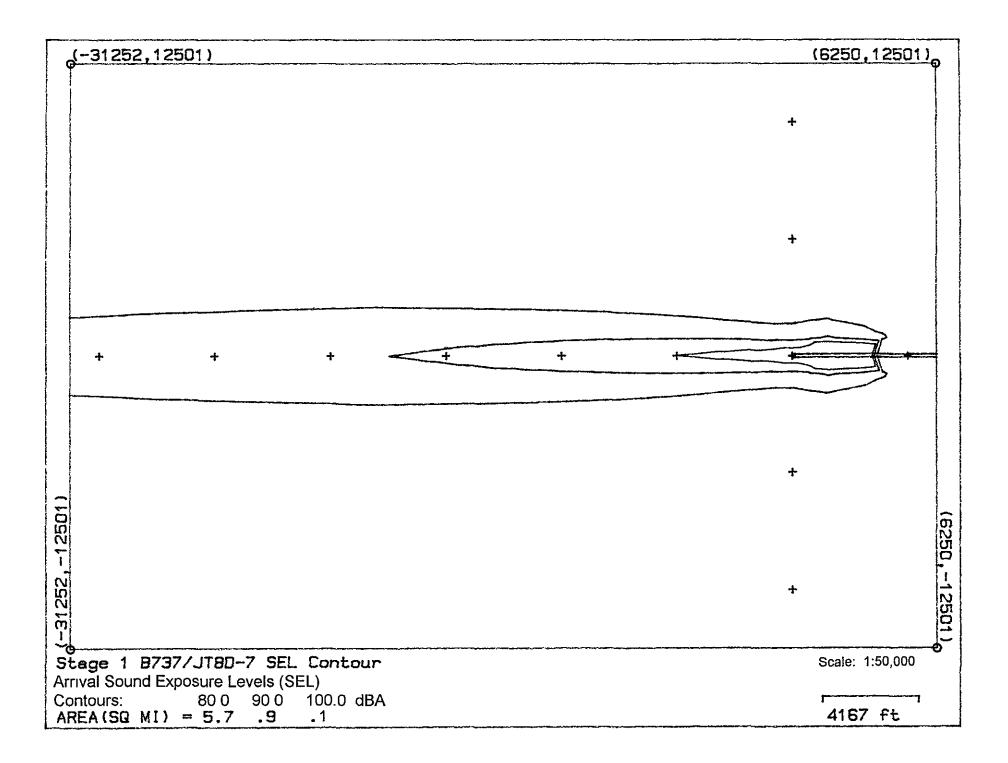


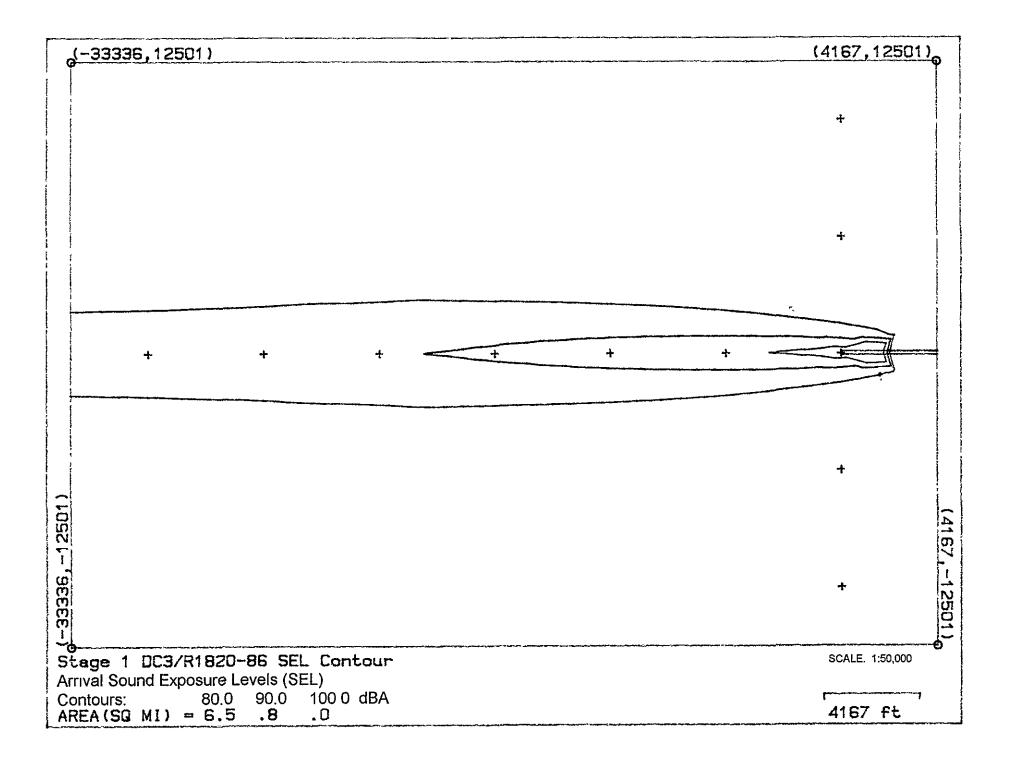


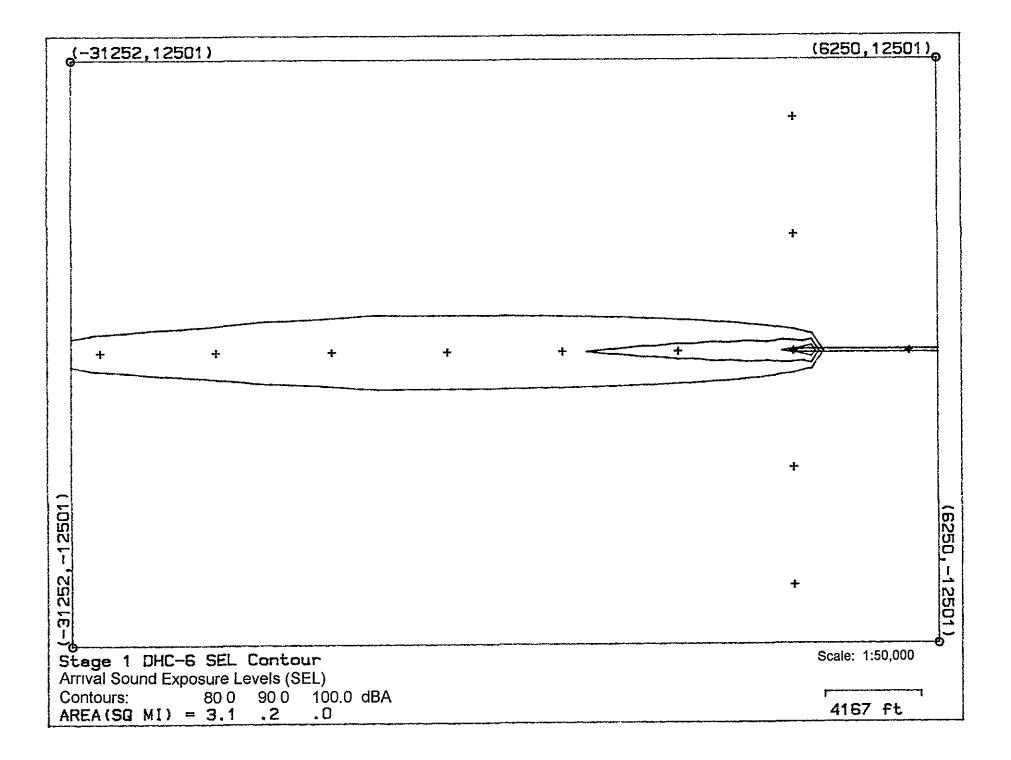


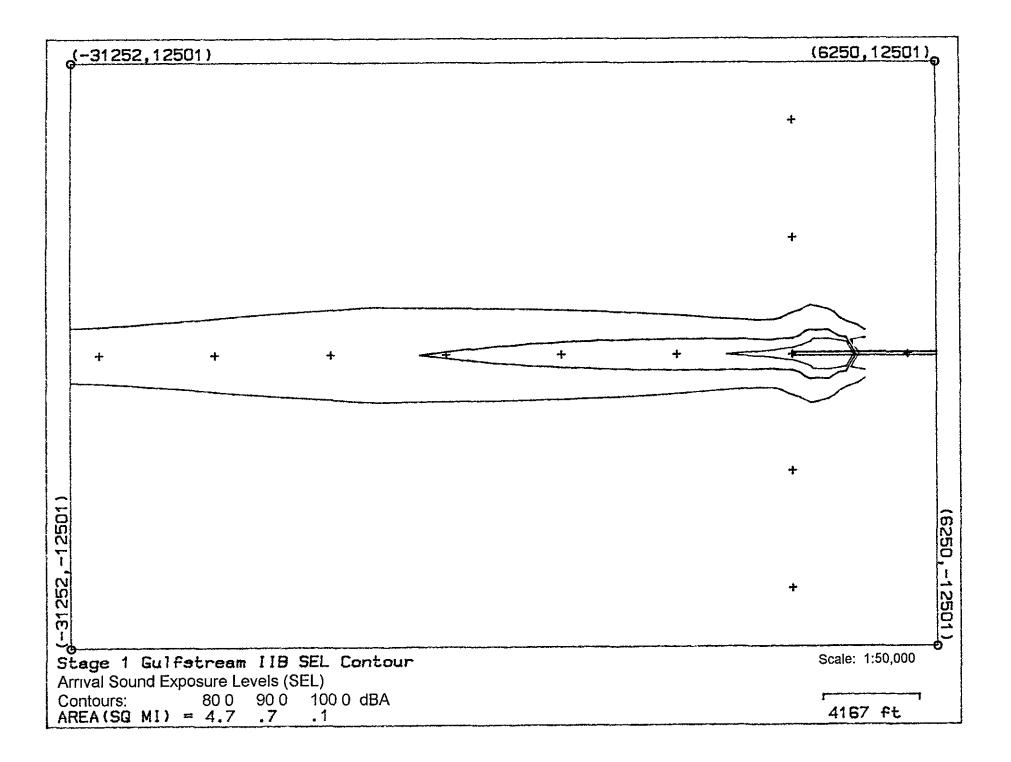






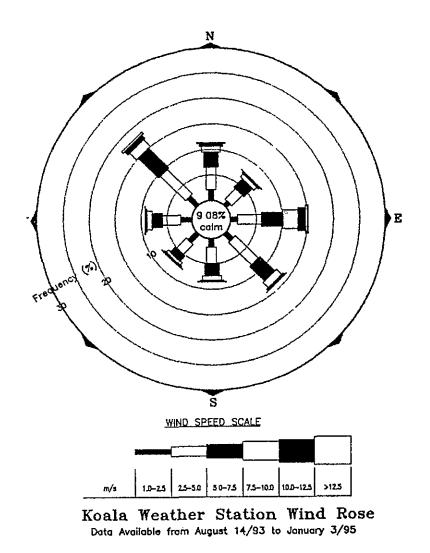






Appendix A

Koala Weather Station Wind Rose Calculations



	Koa	la Weath	ner Stat	ion Wir	nd Rose	Calcul	ations			
			[							
Preferred runway	availab	ility (runwa	y 02 - arriva	als, runway	20 - depar	tures)				
			[							
Acceptable winds	peeds f	or.						in	m/s	
			Runway		Runway		Runway		Runway	<u>02 Use</u>
Direction (True)	Angle				<u>@ 0 kts</u>	<u>@ 5 kts</u>			<u>@ 0 kts</u>	<u>@ 5 kts</u>
North	23	0 920505	0		n/a	54	00	00	n/a	ł — ·
North-East	22	0 927184	0	0	n/a	5 4	0 0	0 0	n/a	28
East	67	0 390731	0	0	n/a	12 8	0.0	0 0	n/a	66
South-East	112	-0 37461	n/a	13 3	0	0	n/a	69	0 0	0 (
South	157	-0 9205	n/a	54	0	0	n/a	28	0 0	0 (
South-West	202	-0 92718	n/a	54	0	0	n/a	28	0 0	0 0
West	247	-0 39073	n/a	12 8	0	0	n/a	66	00	0 0
North-West	292	0 374607	0	0	n/a	13 3	0.0	00	n/a	69
	L	L	<u> </u>					i		<u>-</u>
Percentage of tim	ie winds	s are accept								ļ
			Runway		Runway 02 Use					
Direction (True)			<u>@ 0 kts</u>	<u>@ 5 kts</u>	<u>@ 0 kts</u>	<u>@ 5 kts</u>	·····			
North	ļ		12%		0%					
North-East			7%		0%	2%				
East		ļ	15%	15%	0%	10%				
South-East			0%	7%	14%	14%				
South			0%	2%	8%	8%				
South-West			0%	3%	7%	7%				
West			0%	8%	9%	9%				
North-West		L	18%	18%	0%	15%				
Calm			9%	9%	9%	9%				
Total Availability			61%	81%	47%	77%				1

Appendix B

Aircraft Movements Spreadsheets

	BHP Di	amonds	Aircrat	ft Nois	e Cont	ours					
<u>10. 2004 - 100 - 1</u> .	Aırcraft	Movemer	t Sprea	dsheet	- Scena	ario 1					
· · · · · · · · · · · · · · · · · · ·		[			}						
Scenario:	Operations	Period (20	07 - Onw	ards)							
Peak Daily Movements:	16	1	8	flights p	er day						
Average Daily Movements:	6		3 flights per								
% Night-time Movements:	100%						Ì				
Runway Useage:	Assume pr	eferential ru	inway us	eage with	n 5 kt tail	wind acco	eptance				•
% Runway Use	Rwy 02	Rwy 20									
Departures	0.23	0.81									
Amvals	0.77	0.19									
PEAK PLANNING DAY CAL	(NEF)	Departu				Arrivals					
		1	Rwy 02	Rwy 02	Rwy 20	Rwy 20	Rwy 02	Rwy 02	Rwy 20	<u>Rwy 20</u>	
Aircraft Type	Code	<u>% of a/c</u>	Day	Night	Day	Night	Day	Night	Day	<u>Night</u>	Totals
B-727-200/JT8D-17	727D17	41.8%	0.00	0.77	0.00	2.71	0.00	2.57	0.00	0.64	6,69
Heavy twin-prop Cargo A/C	DC3	10.7%	0.00	0.20	0.00	0.70	0.00	0.66	0.00	0.16	1 72
DHC-6 Twin Otter	DHC6	43.6%	0.00	0.80	0.00	2.82	0.00	2.68	0.00	0.66	6.97
Gulfstream GIIB	GIIB	3.9%	0.00	0.07	0.00	0.25	0.00	0.24	0.00	0.06	0.62
		100.0%	0.00	1.84	0.00	6.48	0.00	6.16	0.00	1.52	16.00
											16.00
AVERAGE DAY CALCULAT	IONS (INM-S	SEL)	Departu				Arrivals				
			Rwy 02	Rwy 02	Rwy 20	Rwy 20	Rwy 02	Rwy 02	Rwy 20	<u>Rwy 20</u>	
Aircraft Type	Code	<u>% of a/c</u>	<u>Day</u>	Night	Day	Night	Day	Night	Day	<u>Night</u>	<u>Totals</u>
B-727-200/JT8D-17	727D17	41.8%	0,00				0.00	0.97	0.00	0.24	2.51
Heavy twin-prop Cargo A/C	DC3	10.7%	0.00	0.07	0.00	0.26	0.00	0.25	0.00	0.06	0.64
DHC-6 Twin Otter	DHC6	43.6%	·						0.00	0.25	2.61
Gulfstream GIIB	GIIB	3.9%	0.00	0.03	0.00	0.09	0.00	0.09	0.00	0.02	0.23
		100.0%	0.00	0.69	0.00	0.40	0.00	0.01	0.00	0.57	0.00
		100.0%	0.00	0.09	0.00	2.43	0.00	2.31	0.00	0.57	6.00
		l		<u> </u>						l	6.00

	BHP Di	amonds	Aircra	ft Noise	e Cont	ours				· · · · · · · · · · · · · · · · · · ·	
	Aircraft I	Novemen	Sprea	dsheet	- Scena	rio 2					
Scenario:	Operations	Period (20	07 - Onw	ards)							
Peak Daily Movements:	16			flights po							
Average Daily Movements:	6		3	flights po	er day						
% Night-time Movements:	100%										
Runway Useage:	Assume pr	eferential ru	inway us	eage witl	n 5 kt tail	wind acc	eptance				
% Runway Use	Rwy 02	Rwy 20				1			[		
Departures	0.23	0.81									
Arrivals	0.77	0.19									
PEAK PLANNING DAY CALC	ULATIONS	(NEF)	Departu	res			Arrivals				
			Rwy 02	Rwy 02	Rwy 20	Rwy 20	Rwy 02	Rwy 02	Rwy 20	Rwy 20	
Aircraft Type	Code	% of a/c	Day	Night	Day	Night	Day	Night	Day	Night	Totals
B-737/JT8D-7	737	41.8%	0.00		0.00		0.00	2.57	0.00		6.69
Heavy twin-prop Cargo A/C	DC3	10.7%	0.00	0.20	0.00	0.70	0.00	0.66	0.00	0.16	1.72
DHC-6 Twin Otter	DHC6	43.6%	0.00	0.80	0.00	2.82	0.00	2.68	0.00	0.66	6.97
Gulfstream GIIB	GIIB	3.9%	0.00	0.07	0.00	0.25	0.00	0.24	0.00	0.06	0.62
				[							
		100.0%	0.00	1.84	0.00	6.48	0.00	6.16	0.00	1.52	16.00
						1					16.00
AVERAGE DAY CALCULATI	ONS (INM-S	SEL)	Departu	ires			Arrivals				
	Ţ	1	Rwy 02	Rwy 02	Rwy 20	Rwy 20	Rwy 02	Rwy 02	Rwy 20	Rwy 20	1
Aircraft Type	Code	% of a/c	Day	Night	Day	Night	Daγ	Night	Day	Night	Totals
B-737/JT8D-7	737	41.8%	0.00	5	0.00	1.02	0.00	0.97	0.00	0.24	2.51
Heavy twin-prop Cargo A/C	DC3	10.7%	0.00	0.07	0.00	0.26	0.00	0.25	0.00	0,06	0.64
DHC-6 Twin Otter	DHC6	43.6%	0.00	0.30	0.00	1.06	0.00	1.01	0.00	0.25	2.61
Gulfstream GIIB	GIIB	3.9%	0.00	0.03	0.00	0.09	0.00	0.09	0.00	0.02	0.23
······································		100.0%	0.00	0.69	0.00	2.43	0.00	2.31	0.00	0.57	6.00
										1	6.00

Appendix C

NEF Computer Program Input Files

1.0 "YES" -50.0 16.0 1.00 100 33 0.0 0.0 0.0 0.0 50000.0 "BOTH" "NOLINES" "MAXVALUS" "TITLE" 0 NWT DIAMONDS AIRPORT NEF - SCEN 1 - R2 "RUNWY" 2 "02" 1 0.00 0.00 6.40 0.00 1 0 3.0 3.0 0.0 "DIST" 15.00 "20" 2 6.40 0.00 0.00 0.00 1 0 3.0 3.0 0.0 "DIST" 15.00 "AIRCF" 5 11 11 "727D17" 0.77 0.00 1 1 1 17 61 "727D17" 2 2.71 0.00 1 1 11 11 "727D17" 1 0 1 0.00 2.57 "727D17" t .. 0 2 0.00 0.64 1 " "737" .. 2 1 1 0.00 0.00 " 11 "737" 2 0.00 2 0.00 1 " 17 2 0 "737" 1 0.00 0.00 17 ts 2 0 "737" 2 0.00 0.00 TP "DC3" 17 3 1 0.00 0.20 1 11 tI "DC3" 3 2 0.00 0.70 1 π 8 "DC3" 0.00 0.66 3 0 1 IF "DC3" 11 3 0 2 0.00 0.16 11 "DHC6" 11 4 1 1 0.00 0.80 11 11 "DHC6" 2 0.00 2.82 4 1 97 47 "DHC6" 1 0.00 2.68 4 0 11 2 11 4 0 "DHC6" 0.00 0.66 11 17 "GIIB" 5 1 0.00 0.07 1 17 11 "GIIB" 2 0.00 0.25 5 1 0.24 11 T "GIIB" 0.00 5 0 1 11 TĒ 5 0 "GIIB" 2 0.00 0.06

"END**"

0

```
1.0 "YES"
0.0 16.0 1.00 100 33
0.0 0.0 0.0 0.0 50000.0 "BOTH"
"NOLINES" "MAXVALUS"
"TITLE" 0
NWT DIAMONDS AIRPORT NEF - SCEN 2 - R2
"RUNWY" 2
"02" 1 0.00 0 00
                       6.40 0.00 1 0
3.0 3.0 0.0 "DIST" 15.00
"20" 2 6.40 0.00 0.00 0.00 1 0
3.0 3.0 0.0 "DIST" 15.00
"AIRCF" 5
11
       11
              1
                  "727D17"
                             1
                                0.00
                                        0.00
          1
17
       11
                  "727D17"
                                 0.00
           1
              1
                             2
                                        0.00
11
       11
                  "727D17"
              0
                                        0.00
          1
                             1
                                 0.00
11
       11
                 "727D17"
          1
              0
                             2
                                 0.00
                                        0.00
TE
       17
          2
              1
                  "737"
                             1
                                 0.00
                                        0.77
           2
                  "737"
τŧ
       77
                             2
              1
                                 0.00
                                        2.71
τ.
       11
          2
                  "737"
              0
                             1
                                 0.00
                                        2.57
...
       11
          2
                  "737"
                             2
              0
                                 0.00
                                        0.64
...
       ...
           3
                  "DC3"
                             1
                                 0.00
                                        0.20
              1
                  "DC3"
11
       ļГ
           3
                             2
              1
                                 0.00
                                        0.70
                  "DC3"
11
       H.
           3
              0
                             1
                                 0.00
                                        0.66
U.
       11
           3
                  "DC3"
                             2
              0
                                 0.00
                                        0.16
...
       ..
           4
              1
                  "DHC6"
                             1
                                 0.00
                                        0.80
"
       18
                  "DHC6"
                             2
                                 0.00
                                        2.82
           4
              1
17
       17
                  "DHC6"
                                 0.00
           4
              0
                                        2.68
                             1
                                 0.00
11
       11
           4
              0
                  "DHC6"
                             2
                                        0.66
11
       11
                  "GIIB"
           5
              1
                             1
                                 0.00
                                        0.07
11
       17
           5
                  "GIIB"
                             2
                                 0.00
                                        0.25
              1
11
       11
           5
                  "GIIB"
                             1
              0
                                 0.00
                                        0.24
11
       17
           5
              0
                  "GIIB"
                             2
                                0.00
                                        0.06
```

"END**"

0

Appendix D

**INM Program Input Files** 

```
BEGIN.
SETUP:
  TITLE <Aircraft Noise Leq Contour - Scenario 1 - Rev 2>
  AIRPORT <BHP Diamonds Mine Airport>
  ALTITUDE 1500
  TEMPERATURE 11 C
  RUNWAYS
    RW 02-20 0 0 TO 6400 0
                              HEADING=90
AIRCRAFT:
  TYPES
    AC 727D17
    AC 737
    AC DC3
    AC DHC6
    AC GIIB
TAKEOFFS BY FREQUENCY:
  TRACK TR1 RWY 02 STRAIGHT 50
    OPER 727D17 STAGE 1 N=0.29
    OPER 737
                STAGE 1
                        N=0.00
    OPER DC3
                STAGE 1 N=0.07
                STAGE 1 N=0.30
    OPER DHC6
                STAGE 1 N=0.03
    OPER GIIB
  TRACK TR2 RWY 20 STRAIGHT 50
    OPER 727D17 STAGE 1 N=1.02
OPER 737 STAGE 1 N=0.00
                STAGE 1 N=0.26
    OPER DC3
    OPER DHC6
                STAGE 1 N=1.06
    OPER GIIB
                STAGE 1 N=0.09
LANDINGS BY FREQUENCY:
  TRACK TR3 RWY 02 STRAIGHT 50
    OPER 727D17 PROF=STD3D N=0.97
    OPER 737
                PROF=STD3D N=0.00
    OPER DC3
                PROF=STD3D N=0.25
    OPER DHC6
                PROF=STD3D N=1.01
                PROF=STD3D N=0.09
    OPER GIIB
  TRACK TR4 RWY 20 STRAIGHT 50
    OPER 727D17 PROF=STD3D N=0.24
    OPER 737
                PROF=STD3D
                            N=0.00
                PROF=STD3D N=0.06
    OPER DC3
    OPER DHC6 PROF=STD3D N=0.25
    OPER GIIB PROF=STD3D N=0.02
PROCESS:
NOWARN.
  CONTOUR LEQ AT 45 50 55 60 65 WITH TOLERANCE=.2
          PLOT SIZE=11 8.5 SCALE=625
END.
```

```
BEGIN.
      SETUP:
        TITLE <Aircraft Noise Leq Contour - Scenario 2 - Rev 2>
        AIRPORT < BHP Diamonds Mine Airport>
       ALTITUDE 1500
       TEMPERATURE 11 C
       RUNWAYS
         RW 02-20 0 0 TO 6400 0 HEADING=90
      AIRCRAFT:
        TYPES
         AC 727D17
         AC 737
         AC DC3
         AC DHC6
         AC GIIB
      TAKEOFFS BY FREQUENCY:
        TRACK TR1 RWY 02 STRAIGHT 50
         OPER 727D17 STAGE 1 N=0.00
          OPER 737
                     STAGE 1 N=0.29
                     STAGE 1
                              N=0.07
          OPER DC3
          OPER DHC6
                     STAGE 1 N=0.30
                     STAGE 1
          OPER GIIB
                              N=0.03
        TRACK TR2 RWY 20 STRAIGHT 50
          OPER 727D17 STAGE 1 N=0.00
          OPER 737
                     STAGE 1
                              N=1.02
                      STAGE 1
                              N=0.26
          OPER DC3
          OPER DHC6
                      STAGE 1 N=1.06
                      STAGE 1 N=0.09
          OPER GIIB
      LANDINGS BY FREQUENCY:
        TRACK TR3 RWY 02 STRAIGHT 50
          OPER 727D17 PROF=STD3D N=0.00
          OPER 737
                    PROF=STD3D N=0.97
          OPER DC3
                      PROF=STD3D N=0.25
                    PROF=STD3D N=1.01
          OPER DHC6
                    PROF=STD3D N=0.09
          OPER GIIB
        TRACK TR4 RWY 20 STRAIGHT 50
          OPER 727D17 PROF=STD3D N=0.00
          OPER 737
                    PROF=STD3D N=0.24
                     PROF=STD3D N=0.06
          OPER DC3
          OPER DHC6 PROF=STD3D N=0.25
          OPER GIIB PROF=STD3D N=0.02
      PROCESS:
      NOWARN.
        CONTOUR LEQ AT 45 50 55 60 65 WITH TOLERANCE=.2
                PLOT SIZE=11 8.5 SCALE=625
      END.
```

Appendix E

Sample INM - SEL Input File

BEGIN.

SETUP:

TITLE <Stage 1 B727-200/JT8D-17 SEL Contour> AIRPORT <Departure SEL = Ldn + 20 dB>

ALTITUDE 1500 TEMPERATURE 11 C

RUNWAYS RW 02-20 0 0 TO 6400 0 HEADING=90

AIRCRAFT:

TYPES AC 727D17

TAKEOFFS BY FREQUENCY:

TRACK TR1 RWY 02 STRAIGHT 40000 OPER 727D17 STAGE 1 D=864

LANDINGS BY FREQUENCY:

TRACK TR2 RWY 02 HEADING 90 STRAIGHT 40000 OPER 727D17 PROF STD3D D=0

**PROCESS:** 

NOWARN.

CONTOUR LDN AT 60 70 80 WITH TOLERANCE=.2 PLOT SIZE=11 8.5 SCALE=2083

END.

NWT Diamonds Project

# Sound Contour Modelling Program - SOUNDMDL[©]

#### INTRODUCTION

Sound propagation out of doors is a complicated interaction of sound waves and the environment through which they pass. Sound is attenuated by the air through which it passes. It is bent by winds and by thermal gradients. It is diffracted by barriers, diminished with distance, and is cancelled or amplified by reflections due to the ground. Wind, thermal gradients and ground effect have been empirically modelled based on measurements made in benchmark studies by Parkin and Scholes.^{1,2} The computer program SOUNDMDL has been written to undertake these calculations.

#### **DESCRIPTION OF THE PROGRAM**

The program performs all of its calculations in octave bands from 63 Hz. to 4000 Hz. to allow consideration of the frequency effects of the attenuating factors on the sound propagation. The results are converted to "A"-weighted levels at the output stage.

Each source of sound is considered to be a point source with X, Y, and Z coordinates. This is a valid assumption with the distances involved in the use of the model. Where a line source is required, such as vehicles on roads, the line source is modelled as a series of point sources and the vehicles are apportioned to each point. Each source can also have a Directivity Index applied to the four principle compass points. Directivity is interpolated for intermediate points.³ Each source has unique sound power levels in octave bands.

¹ Parkin, P H. and Scholes, W.E., "The Horizontal Propagation of Sound from a Jet Engine Close to the Ground, at Radlett", *Journal of Sound and Vibration* (1964) **1**, 1-13

² Parkin, P.H. and Scholes, W.E., "The Horizontal Propagation of Sound from a Jet Engine Close to the Ground, at Hatfield", *Journal of Sound and Vibration* (1965) **2**, 353-374

³ For mobile equipment, directivity generally cannot be predicted Therefore in these situations maximum sound power is applied in all directions.

A receiver location is selected using X, Y, and Z coordinates. For each source, the program computes the bearing and distance from source to receiver. This information is then used to calculate the Directivity Index effect for the source and the attenuations due to distance, atmospheric absorption, wind, thermal gradients, ground effect and barriers. The effective attenuation of wind and thermal gradients are weighted by the relative probability of their occurrence (determined using meteorologic data for the area) and the resulting average attenuation is applying this effective attenuation to the sound propagation. The resulting sound pressure level at the receiver is then summed (on an energy basis) with the sound from all other sources to the same receiver and the total sound pressure is determined. The "A"-weighted sound level is calculated at this point. By relocating the receiver through a grid of points, an array of levels can be developed and sound level contours derived.

## **Distance Attenuation**

Attenuation due to distance has been computed using standard wave divergence formulae which use an inverse square relationship for the decrease in sound pressure level with increasing distance.

#### **Atmospheric Absorption**

Sound passing for any distance through the atmosphere is attenuated by the passage. Attenuation due to atmospheric absorption has been computed using the American National Standards Institute (ANSI) Standard S1.26, "Method for the Calculation of the Absorption of Sound by the Atmosphere".

### **Attenuation Due to Wind**

Wind generally has a velocity gradient with wind speed increasing with elevation. This gradient affects the sound waves travelling through the moving air such that sound travelling downwind is bent progressively downwards with a resulting amplification. Correspondingly, sound travelling upwind is bent progressively upwards and there is an attenuation of the sound. Sound travelling at right angles to the wind direction is relatively unaffected.

Attenuation due to wind is based on the Parkin and Scholes data. Wind is input in terms of velocity and direction. Three velocity conditions are considered. The first condition is a zero velocity (calm) and the attenuation is zero. The second is a wind speed of plus 5 m/s [approx 16 Kmh] (where plus indicates that the wind is moving in the same direction as the sound). Under this condition, the attenuation factor can be negative and sound levels can increase. The third is a wind speed of minus 5 m/s. Under this condition, the attenuation factor is positive. Winds at greater speeds are assumed to be equivalent to 5 m/s as the increased wind speed raises the ambient sound levels at the receiver and the increased turbulence tends to break up the sound signal. The relative bearing of the sound direction to wind direction is computed and a cosine² function is used to determine attenuation at angles other than zero.

## **Attenuation Due to Thermal Gradients**

Attenuation due to thermal gradients is based on the Parkin and Scholes data. Three thermal conditions are considered: Inversion, Lapse, and Isothermal Neutral. When the air temperature varies with height from the ground, sound passing through the air at an angle to the thermal gradient will be bent. Under inversion conditions, where the air temperature increases with elevation, sound is bent downwards. Under lapse conditions, where air temperature decreases with elevation, sound is bent upwards. Under neutral conditions, sound travels in a straight path.

Under inversion conditions, sound which would normally travel up into the atmosphere and dissipate is bent progressively downwards and adds to the sound which would normally travel on a straight line from source to receiver. Thus the sound level increases. Under lapse conditions, sound normally travelling from source to receiver is bent progressively upwards where it dissipates in the atmosphere. The result is that the sound level at the receiver decreases. Under neutral conditions the sound level neither increases or decreases. Both neutral and lapse conditions can occur when there is a wind but inversions tend to be collapsed by winds.

The program permits the coexistence of winds with isothermal neutral and lapse conditions. It will only allow inversion conditions with no wind. As inversion, isothermal neutral, and lapse conditions apply equally in all directions from the source, source/receiver bearing is not applied to this calculation.

## **Ground Effect Attenuation**

In any outdoor sound propagation situation there is usually reflection of the sound off the ground to the receiver in addition to the direct straight line path from source to receiver. This reflected sound interacts with the direct sound and can have a significant influence due to phase cancellation. The effect is to increase the attenuation from source to receiver in mid frequencies while providing amplifications at lower frequencies. The factors which modify this interaction include ground geometry, ground cover, and ground effect (the acoustical impedance of the ground surface). All of these factors are frequency dependent and depend on the relative locations (distances and angles) of source, ground, and receiver. Ground interaction effects have been included in the calculations using the Parkin and Scholes data.

### **Barrier Attenuation**

When a barrier is placed in the path between a source and receiver sound is attenuated. The extent of the attenuation depends on the frequency of the sound and the degree of penetration of the barrier into the source/receiver path. The barriers can be natural terrain obstacles, as well as manmade obstacles such as berms, buildings, and fences. The program calculates the attenuation due to barriers using standard models developed from optical diffraction theory. The program allows the input of multiple barriers with each barrier described by X, Y, and Z coordinates for its end points. It is assumed that the top of the barrier is a straight line between these points. Irregularly shaped obstacles are each described by using several barriers to outline their general shapes. For each source/receiver path, the program determines which, if any, of the barriers are significant. If more than one barrier interrupts the path, the attenuation of the barrier which has the greatest attenuation is used. Barrier attenuations are not accumulated.

As barriers tend to cancel out ground effect, if a barrier is present on a specific source/receiver path, the ground effect attenuation which would otherwise exist if the barrier were not present is reduced in recognition of this factor.

# **Program Input**

The input data is accumulated into a single file which is then read by the program. This input data file forms a complete record of the input data on which the sound contour calculations have been made. The program input data for the scenarios evaluated on this project follow.

This is the data used to input the initial stages of the Panda pit. Due to the proximity of this pit to the plant, the model includes both operations. The year modelled is 1999.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,170,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

This data is for: SUMMER This is a file for the input to SOUNDMDL /Output File Name (No Extension) NWTD-P1S /Replace File or Append (R/A) R /Identifier NWT Diamonds - Panda Pit Scenario 1 (1999) - Summer /Metric or English (M/E) М /Number of Sources /Source Coordinates, (input exact # of lines to match Number of Sources)  $\mathbf{Z}$ Comment /Number х Y 490, "Plant Building" 465, "Main Powerplant" 465, "Crusher" 490, "Dump Road Flat d1" 490, "Dump Road Flat d2" 490, "Dump Road Flat d3" 490, "Dump Road Flat d4" 490, "Dump Road Flat d5" 490, "Dump Road Flat d6" 467, "Dump Road grade d7" 427, "Dump Road grade d8" 475, "Ore Road Flat o1" 475, "Ore Road Flat o2" 475, "Ore Road Flat o3" 470, "Ore Road Grade o4" 465, "Ore Road Grade o5" 460, "Ore Road Grade o6" 457, "Ore Road Grade o7" 440, "Ore Road Grade 08" 427, "Ore Road Grade o9" 427, "Shovel in Pit" 427, "Loader in Pit" 490, "Cat at Rock Dump" 490, "Cat at plant" 490, "Loader at plant" 490, "Excavator at plant" 81.40 400, "Diesel Rotary Drill" /Elevation of source above grade (average if more than one source) /Source Sound Power Levels and Directivities (NESW) /input exact number of lines to match Number of Sources

/No. 1 2 3 4 5 6 7 8 9 10 12 13 14 5 6 7 8 9 10 12 13 14 5 16 17 18 9 20 21 22 23 24 25 26 20 21 22 23 24 25 20 21 22 23 24 25 26 20 21 22 23 24 25 26 20 20 20 20 20 20 20 20 20 20	$\begin{array}{c} 63\\ 113\\ 129.5\\ 122.4\\ 118.9\\ 115.9\\ 115.9\\ 115.9\\ 115.9\\ 115.9\\ 121.6\\ 124.6\\ 108.8\\ 105.8\\ 105.8\\ 105.8\\ 105.8\\ 105.8\\ 111.5\\ 111.5\\ 111.5\\ 111.5\\ 111.5\\ 111.5\\ 114.5\\ 116.4\\ 111.7\\ 117.4\\ 108.4\\ 102.4\\ 112.4 \end{array}$	125 114 108.5 122.4 119.9 116.9 116.9 116.9 116.9 116.9 125.5 128.5 109.8 106.8 106.8 106.8 105.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 117.4 114.7 120.4 114.7	$\begin{array}{c} 250\\ 111\\ 101.5\\ 119.4\\ 116.9\\ 113.9\\ 113.9\\ 113.9\\ 113.9\\ 113.9\\ 113.9\\ 113.9\\ 113.9\\ 117.4\\ 120.4\\ 106.8\\ 103.8\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 107.3\\ 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117.9 114.9 114.9 114.9 114.9 114.9 114.9 114.9 114.9 114.9 114.9 107.8 104.8 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 107.4 108.7 118.4 109.4 99.4 106.4	1000 111 108.5 121.4 116.9 113.9 113.9 113.9 113.9 113.9 113.9 113.9 113.9 113.9 113.9 113.9 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.8 105.4 102.4 106.4	$\begin{array}{c} 2000\\ 108\\ 110.5\\ 114.4\\ 113.9\\ 110.9\\ 110.9\\ 110.9\\ 110.9\\ 110.9\\ 110.9\\ 114.2\\ 107.2\\ 103.8\\ 100.8\\ 104.1\\ 104.1\\ 104.1\\ 104.1\\ 104.1\\ 104.1\\ 104.1\\ 104.1\\ 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27	117.4	120.4	114,4	118.4	114.4	114.4	112.4	Õ	Õ	Ö	õ
/Num 11	ber of	Barrier	S								
/Bar /#	rier Co X1	ordinat	.es, (in Yl	put exa	.ct # of Z1	lines	to match X2	Numb	er of Y2	Barries	:s) Z2
/π 1	18500		8000								
	<b>#0000</b>				490		600		8900		490
2	16860		8550		490	17	080		8600		498
2 3	16860 17080		8550 8600		490 498	17 17	'080 '300		8600 8600		498 490
2 3 4	16860		8550 8600 8200		490	17 17 17	080 300 340		8600		498
2 3 4 5 6	16860 17080 17200		8550 8600 8200 8500 7450		490 498 497 497 504	17 17 17 17 17	080 300 340 600 200		8600 8600 8260 8600 7450		498 490 497 497 504
2 3 4 5 6 7	16860 17080 17200 17300 17020 20000		8550 8600 8200 8500 7450 3800		490 498 497 497 504 505	17 17 17 17 17 17 21	080 300 340 600 200 100		8600 8600 8260 8600 7450 5240		498 490 497 497 504 505
2 3 4 5 6 7 8	16860 17080 17200 17300 17020 20000 23800		8550 8600 8200 8500 7450 3800 7900		490 498 497 504 505 505	17 17 17 17 17 21 23	080 300 340 600 200 100 800		8600 8600 8260 8600 7450 5240 8100		498 490 497 504 505 505
2 3 4 5 6 7 8 9	16860 17080 17200 17300 17020 20000 23800 22700		8550 8600 8200 8500 7450 3800 7900 7600		490 498 497 504 505 505 505 500	17 17 17 17 17 21 23 22	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800		498 490 497 504 505 505 505
2 3 4 5 6 7 8	16860 17080 17200 17300 17020 20000 23800		8550 8600 8200 8500 7450 3800 7900		490 498 497 504 505 505	17 17 17 17 17 21 23 22 19	080 300 340 600 200 100 800		8600 8600 8260 8600 7450 5240 8100		498 490 497 504 505 505
2 3 4 5 6 7 8 9 10 11 Temp	16860 17080 17200 17300 20000 23800 22700 16600 20550		8550 8600 8200 8500 7450 3800 7900 7600 7700 0000		490 498 497 497 504 505 505 500 490	17 17 17 17 17 21 23 22 19	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800 8750		498 490 497 504 505 505 500 490
2 3 4 5 6 7 8 9 10 11 Temp 12	16860 17080 17200 17300 20000 23800 22700 16600 20550 Perature	1 a (deg c	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius)		490 498 497 504 505 505 500 490 500	17 17 17 17 17 21 23 22 19	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800 8750		498 490 497 504 505 505 500 490
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature Ative H	1 e (deg c lumidity	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius) * %value	(0 - 1	490 498 497 504 505 505 500 490 500	17 17 17 17 17 21 23 22 19	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800 8750		498 490 497 504 505 505 500 490
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature Ative H	1 a (deg c	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius) * %value	(0 - 1	490 498 497 504 505 505 500 490 500	17 17 17 17 17 21 23 22 19	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800 8750		498 490 497 504 505 505 500 490
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir 110	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature Ative H	1 e (deg c lumidity edominan	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius) * &value t Beari	(0 - 1 ng (Fro	490 498 497 504 505 505 500 490 500	17 17 17 17 21 23 22 19 20	080 300 340 200 100 800 700		8600 8600 8260 8600 7450 5240 8100 7800 8750		498 490 497 504 505 505 500 490
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir 110 /Wir 315	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature Ad - Pre	1 deg c lumidity dominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius) * %value t Beari dominan	(0 - 1 ng (Fro t Beari	490 498 497 504 505 505 500 490 500 .00) .00) .ng (Fro	17 17 17 17 21 23 22 19 20	080 300 340 200 100 800 700 980		8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir 110 /Wir 315 /Env	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ative H ad - Pre	1 (deg c lumidity dominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 elsius) * &value t Beari dominan ditions	(0 - 1 ng (Fro t Beari (enter	490 498 497 504 505 505 500 490 500 .00) mm) .ng (Fro 0 for %	17 17 17 17 21 23 22 19 20	080 300 340 200 100 800 700 980 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir 110 /Win 315 /Env /Sum	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ative H ad - Pre- ad - Sec vironmen of per	1 (deg c lumidity edominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 eelsius) * *value t Beari edominan ditions s should	ng (Fro t Beari (enter l add up	490 498 497 504 505 505 500 490 500 .00) .ng (Fro 0 for % 5 to 100	n) 17 17 17 17 21 23 22 19 20 * (incl	080 300 340 200 100 800 700 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Wir 110 /Win 315 /Env /Sum	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ative H ad - Pre- ad - Sec vironmen of per	1 (deg c lumidity dominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 eelsius) * *value t Beari edominan ditions s should	ng (Fro t Beari (enter l add up	490 498 497 504 505 505 500 490 500 .00) .ng (Fro 0 for % 5 to 100	n) 17 17 17 17 21 23 22 19 20 * (incl	080 300 340 200 100 800 700 980 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 /Rel 35 /Win 110 /Win 315 /Env /Sum /Per 41 /Inv	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ative H ad - Pre ad - Sec vironmen a of per centage	1 (deg c lumidity edominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 eelsius) * *value t Beari edominan ditions s should	ng (Fro t Beari (enter l add up	490 498 497 504 505 505 500 490 500 .00) .ng (Fro 0 for % 5 to 100	n) 17 17 17 17 21 23 22 19 20 * (incl	080 300 340 200 100 800 700 980 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 7 8 9 10 11 Temp 12 5 /Win 315 /Env /Yen 41 /Inv 12.5	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ad - Pre- ad - Sec vironmen a of per centage	1 (deg c lumidity edominan cond Pre tal Con ccentage of Tim	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 eelsius) * *value t Beari edominan ditions a should me Wind	ng (Fro t Beari (enter l add up	490 498 497 504 505 505 500 490 500 .00) .ng (Fro 0 for % 5 to 100	n) 17 17 17 17 21 23 22 19 20 * (incl	080 300 340 200 100 800 700 980 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500
2 3 4 5 6 7 8 9 10 11 Temp 12 7 8 9 10 11 Temp 12 5 /Win 315 /Env /Yen 41 /Inv 12.5	16860 17080 17200 17300 20000 23800 22700 16600 20550 Derature ative H ad - Pre- ad - Sec vironmen a of per centage version	1 (deg c lumidity edominan cond Pre	8550 8600 8200 8500 7450 3800 7900 7600 7700 0000 eelsius) * *value t Beari edominan ditions a should me Wind	ng (Fro t Beari (enter l add up	490 498 497 504 505 505 500 490 500 .00) .ng (Fro 0 for % 5 to 100	n) 17 17 17 17 21 23 22 19 20 * (incl	080 300 340 200 100 800 700 980 980	xist	8600 8600 8260 8600 7450 5240 8100 7800 8750 9600		498 490 497 504 505 505 500 490 500

```
/Lapse - No Wind
10.4
/Neutral - Wind from Predominant Direction 1
20
/Neutral - Wind from Predominant Direction 2
12
/Lapse - Wind from Predominant Direction 1
6
/Lapse - Wind from Predominant Direction 2
3.6
/Minimum Sound Level of Concern (dBA)
25
/Radial Receiver Origin - X and Y
18000
         7000
/Minimum Radial Distance from Receiver Origin
1000
/Maximum Radial Distance from Receiver Origin
20000
/Receiver Height above grade
1.5
/Radial Step Multiplier (>1; The smaller the multiplier the more refined
/the data, however, the longer the program runs
1.015
/Radial Starting Angle (North=0)
0
/Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start)
359
/Radial angle step
З.
/Receiver Profiles
/Number of Profiles (max 10)
9
/For each profile input Profile Bearing, Then pairs of Radial Dist, Elev
/Start each with Radial Dist of 0 and finish each with Radial Dist of 200000.
/The max radial entries per profile is 50. The profile bearings must increase
/The profile range must bracket the radial sweep, If you are doing a
/complete sweep, the 1st profile should be bearing 0 and the last bearing 359
/They can contain identical data.
Ω
0
         475
250
         480
710
         485
1690
         490
1980
         495
200000
        495
45
0
         475
2900
         475
        500
3540
4000
        510
4330
        505
4520
        500
5000
         475
200000
        475
90
0
         475
3220
         475
4100
         500
200000 500
```

135	
0 1700	475 475
3280	500
3900 4780	500
200000	475 475
180	
0 2200	475 450
200000	450
225	
0 600	475 475
2800	450
3460	450
4640 6000	425 450
200000	450
270	4775
0 1640	475 475
2600	475 450
3600 4620	450
200000	475 475
315 0	
0 200000	475 475
359	475
0	475
250 710	480 485
1690	490
1980	495
200000	495

#### Panda - Scenario 1 Input Data (Winter)

This is the data used to input the initial stages of the Panda pit. Due to the proximity of this pit to the plant, the model includes both operations. The year modelled is 1999.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,170,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

```
This data is for:
WINTER
This is a file for the input to SOUNDMDL
/Output File Name (No Extension)
NWTD-P1W
/Replace File or Append (R/A)
R
/Identifier
NWT Diamonds - Panda Pit Scenario 1 (1999) - Winter
/Metric or English (M/E)
М
/Number of Sources
27
/Source Coordinates, (input exact # of lines to match Number of Sources)
                          Y
                                          z
                                                 Comment
/Number
           Х
                              490, "Plant Building"
         18000
                   6600
1
2
         18000
                   6300
                              465, "Main Powerplant"
                              465, "Crusher"
3
         18060
                   6300
                              490, "Dump Road Flat d1"
4
         16600
                   7750
5
                              490, "Dump Road Flat d2"
         17080
                   7870
                              490, "Dump Road Flat d3"
         17500
6
                   8100
                              490, "Dump Road Flat d4"
490, "Dump Road Flat d5"
7
         17920
                   8240
8
         18340
                   8200
                   8100
                              490, "Dump Road Flat d6"
9
         18860
                              467, "Dump Road grade d7"
10
         19260
                   8020
                              427, "Dump Road grade d8"
11
         19960
                   8120
                              475, "Ore Road Flat o1"
12
         18140
                   6940
                              475, "Ore Road Flat o2"
13
         18240
                   7160
                              475, "Ore Road Flat o3"
14
         18400
                   7340
15
         18620
                   7500
                              470, "Ore Road Grade o4"
                              465, "Ore Road Grade o5"
16
         18860
                   7600
                              460, "Ore Road Grade o6"
17
         19100
                   7740
                              457, "Ore Road Grade o7"
                   7860
18
         19340
                              440, "Ore Road Grade o8"
19
         19500
                   8030
                              427, "Ore Road Grade o9"
427, "Shovel in Pit"
20
                   8120
         19660
21
                   8120
         19660
                              427, "Loader in Pit"
490, "Cat at Rock Dump"
22
         19660
                   8120
23
         16600
                   7750
                              490,"Cat at plant"
490,"Loader at plant"
24
         18000
                    6600
25
         18000
                    6600
                              490, "Excavator at plant"
26
         18000
                    6600
                              400, "Diesel Rotary Drill"
27
         19660
                    8140
/Elevation of source above grade (average if more than one source)
5
/Source Sound Power Levels and Directivities (NESW)
/input exact number of lines to match Number of Sources
                                                                       Е
                                                                              S
                                                                                     W
/No.
                       250
                               500
                                      1000
                                              2000
                                                      4000
                                                               Ν
        63
               125
```

Panda - Scenario 1 Input Data (Winter)

1 2 3 4 5 6 7 8 9 10 12 13 14 5 6 7 8 9 10 12 13 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 20 1 2 2 3 4 5 6 7 8 9 20 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	113 129.5 122.4 118.9 115.9 115.9 115.9 115.9 115.9 121.6 108.8 105.8 105.8 105.8 105.8 111.5 111.5 111.5 111.5 111.5 114.5 116.4 111.7 117.4 102.4 112.4 102.4 117.4 102.4	114 108.5 122.4 119.9 116.9 116.9 116.9 116.9 125.5 128.5 109.8 106.8 106.8 105.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 116.9 116.9 116.9 106.8 106.8 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 116.9 116.9 116.9 116.9 116.9 116.9 116.9 116.9 116.9 116.9 106.8 106.8 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 115.4 114.7 120.4 114.7 120.4 114.4 120.4 114.4 120.4 114.4 120.4 114.4 120.4 114.4	111 101.5 119.4 116.9 113.9 113.9 113.9 113.9 113.9 113.9 117.4 120.4 106.8 103.8 107.3 107.3 107.3 107.3 107.3 107.3 107.3 107.3 114.4 105.4 109.4 114.4	$112 \\ 104.5 \\ 125.4 \\ 117.9 \\ 114.9 \\ 114.9 \\ 114.9 \\ 114.9 \\ 114.9 \\ 114.9 \\ 114.9 \\ 117.5 \\ 120.5 \\ 107.8 \\ 104.8 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 107.4 \\ 108.7 \\ 118.4 \\ 109.4 \\ 99.4 \\ 118.4 \\ 118.4 \\ 118.4 \\ 108.7 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 109.4 \\ 118.4 \\ 108.7 \\ 118.4 \\ 109.4 \\ 118.4 \\ 108.7 \\ 118.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\ 108.4 \\$	$111 \\ 108.5 \\ 121.4 \\ 116.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 113.9 \\ 103.8 \\ 105.8 \\ 103.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.8 \\ 105.4 \\ 114.4 \\ 102.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 114.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 \\ 106.4 $	$108 \\ 110.5 \\ 114.4 \\ 113.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 \\ 110.9 $	$106 \\ 109.5 \\ 106.4 \\ 111.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 108.9 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.3 \\ 102.4 \\ 101.7 \\ 112.4 \\ 103.4 \\ 97.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\ 112.4 \\$	000000000000000000000000000000000000000	000000000000000000000000000000000000000		000000000000000000000000000000000000000
/Bar: /#	X1	ordinat	Y1	put exa	z1		to match X2		¥2	Barrier	Z2
1 2 3 4 5 6 7	18500 16860 17080 17200 17300 17020 20000		8000 8550 8600 8200 8500 7450 3800		490 490 498 497 497 504 505	17 17 17 17 17	600 080 300 340 600 200 100		8900 8600 8600 8260 8600 7450 5240		490 498 490 497 497 504 505
8 9	23800 22700		7900 7600		505 500	22	800 700		8100 7800		505 500
10 11 Tempe	16600 20550 erature		7700 0000 elsius)		490 500		600 980		8750 600		490 500
-25 /Rela 20	ative H	umidity	v %value	(0 - 1	.00)						
-	d - Pre	dominan	it Beari	ng (Fro	m)						
315			dominan		-						
/Sum /Pero 41	of per centage	centage		add up	) to 100	% (incl	y don't e: uding %				ficant
26	ersion tral -	No Wind	7								
33.2			~								
· t.											

Panda - Scenario 1 Input Data (Winter) 5.2 /Neutral - Wind from Predominant Direction 1 19.2 /Neutral - Wind from Predominant Direction 2 11.52 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 1.8 /Minimum Sound Level of Concern (dBA) 25 /Radial Receiver Origin - X and Y 18000 7000 /Minimum Radial Distance from Receiver Origin 1000 /Maximum Radial Distance from Receiver Origin 20000 /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) n /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) 359 /Radial angle step з /Receiver Profiles /Number of Profiles (max 10) /For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. 0 0 475 250 480 485 710 1690 490 1980 495 200000 495 45 0 475 2900 475 3540 500 4000 510 4330 505 4520 500 5000 475 200000 475 90 0 475 3220 475 4100 500 200000 500

135

0 1700 3280 3900 4780 200000 180	475 475 500 500 475 475
0 2200 200000 225	475 450 450
0 600 2800 3460 4640	475 475 450 450 425
6000 200000 270 0 1640	450 450 475
2600 3600 4620	475 450 450 475
200000 315 0 200000	475 475 475
359 0 250 710 1690 1980 200000	475 480 485 490 495 495

# Panda - Scenario 1 Input Data (Winter)

#### Panda and Koala - Scenario 2 Input Data (Summer)

This is the data used for the operating stage of the Panda pit and the initial stage of the Koala pit. Due to the proximity of this pit to the plant, the model includes both operations. The year modelled is 2001.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,170,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

```
This data is for:
SUMMER
This is a file for the input to SOUNDMDL
/Output File Name (No Extension)
NWTD-P2S
/Replace File or Append (R/A)
R
/Identifier
NWT Diamonds - Panda & Koala Pits Scenario 2 (2001) - Summer
/Metric or English (M/E)
М
/Number of Sources
45
/Source Coordinates, (input exact # of lines to match Number of Sources)
/Number
          X
                         Y
                                        \mathbf{z}
                                              Comment
                            490, "Plant Building"
        18000
                  6600
1
2
        18000
                  6300
                            465, "Main Powerplant"
                            465, "Crusher"
3
        18060
                  6300
4
                            490, "Panda Dump Road Flat d1"
        16600
                  7750
5
        17080
                  7870
                            490, "Panda Dump Road Flat d2"
6
        17500
                  8100
                            490, "Panda Dump Road Flat d3"
7
        17920
                  8240
                            490, "Panda Dump Road Flat d4"
                            490, "Panda Dump Road Flat d5"
8
        18340
                  8200
                  8100
9
        18860
                            490, "Panda Dump Road Flat d6"
10
        19260
                            467, "Panda Dump Road grade d7"
                  8020
                            427, "Panda Dump Road grade d8"
11
        19960
                  8120
12
        18975
                  7050
                            442, "Koala Dump Road grade d1"
13
        18850
                  7100
                            442, "Koala Dump Road grade d2"
14
        18500
                  7125
                            460, "Koala Dump Road grade d3"
                            475, "Koala Dump Road grade d4"
15
        18240
                  7160
                            485, "Koala Dump Road flat d5"
16
        17925
                  7060
                            485, "Koala Dump Road grade d6"
17
        17600
                  7040
                            495, "Koala Dump Road flat d7"
18
        17250
                  7010
                            495, "Koala Dump Road flat d8"
19
        16920
                  6995
20
                            495, "Koala Dump Road flat d9"
        16650
                  6990
21
        16250
                  6950
                            495, "Koala Dump Road flat d10"
22
        15925
                  6930
                            495, "Koala Dump Road flat d11"
23
        18140
                  6940
                            475, "Panda Ore Road Flat o1"
24
                            475, "Panda Ore Road Flat o2"
        18240
                  7160
25
        18400
                  7340
                            475, "Panda Ore Road Flat o3"
                            470, "Panda Ore Road Grade o4"
26
        18620
                  7500
27
                  7600
                            465, "Panda Ore Road Grade o5"
         18860
28
         19100
                  7740
                            460, "Panda Ore Road Grade o6"
29
                            457, "Panda Ore Road Grade o7"
                  7860
         19340
30
                            440, "Panda Ore Road Grade o8"
         19500
                  8030
31
         19660
                   8120
                            427, "Panda Ore Road Grade o9"
                            400, "Panda Ore Road Grade o10"
32
         19800
                   8050
```

Pand	la and K	oala -	Scenari	o 2 Inp	ut Data	(Summe	r)				
33	199	00 8	000	375. "P	anda Or	e Road	Grade ol	1"			
34	198		900				Grade o1				
35	196		120		anda Sh						
36	196		120		anda Lo						
37	166		750				ock Dump"				
38	180		600		at at p						
39	180		600	490,"L	oader a	t plant	," 				
40 41	180 196		600 140		xcavato		ant" stary Dri	111			
42	189		050		oala Sh			* *			
43	189		050		oala Lo						
44	159		930				ock Dump"				
45	196		140				tary Dri				
/Ele	evation	of sour	ce abov				nore ⁻ than		source)		
5	~			• _							
	rce Sou							_			
							f Source		17	~	7.7
/No. 1	63 113	$125\\114$	250 111	500 112	1000 111	2000 108	4000 106	N 0	E O	S 0	W 0
2	129.5	108.5			108.5		109.5	ŏ	ŏ	ŏ	ŏ
3	122.4	122.4	119.4	125.4	121.4		106.4	ŏ	ŏ	ŏ	ŏ
4	118.9	119.9	116.9	117.9		113.9	111.9	ŏ	õ	õ	Õ
5	115.9	116.9	113.9		113.9	110.9	108.9	0	0	0	Ó
6	115.9	116.9	113.9	114.9	113.9	110.9	108.9	0	0	0	0
7	115.9	116.9	113.9		113.9	110.9	108.9	0	0	0	0
8	115.9	116.9	113.9	114.9	113.9	110.9	108.9	0	0	0	0
9	115.9	116.9	113.9	114.9	113.9	110.9	108.9	0	0	0	0
10	121.6	125.5	117.4	117.5	115.9	114.2	112.4	0	0	0	0
11 12	124.6	128.5	120.4	120.5	118.9	117.2	115.4	0	0 0	0 0	0
13	83.4 80.4	87.3 84.3	79.2 76.2	79.3 76.3	$77.7 \\ 74.7$	76.0 73.0	74.2 71.2	0 0	0	0	0 0
14	80.4	84.3	76.2	76.3	74.7	73.0	71.2	Ő	ŏ	ŏ	ŏ
15	80.4	84.3	76.2	76.3	74.7	73.0	71.2	ŏ	Õ	ŏ	ŏ
16	74.7	75.7	72.7	73.7	72.7	69.7	67.7	Ó	Ó	Ō	Ō
17	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	0
18	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0	0	0
19	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0	0	0
20	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0	0	0
21	74 7	75.7	72.7	73.7	72 7	69.7	67.7	0	0	0	0
22 23	77.7	78.7	75.7	76.7	75.7 109.4	72.7	70.7	0	0	0	0
23 24	$\begin{array}{c} 111.4 \\ 108.4 \end{array}$	112.4 109.4	$109.4 \\ 106.4$	$110.4 \\ 107.4$	109.4	$106.4 \\ 103.4$	$104.4 \\ 101.4$	0 0	0 0	0 0	0 0
25				107.4				ŏ	Ö	Õ	ŏ
26	114.1	118.0	109.9	110.0	108.4	106.7	104.9	ŏ	õ	ŏ	ŏ
27	114.1	118.0	109.9	110.0	108.4	106.7	104.9	ŏ	Õ	Ō	Õ
28	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	Ó	Ó	Ō
29	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
30	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
31	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
32	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	Ő	0
33 34	$114.1 \\ 117.1$	$118.0 \\ 121.0$	$109.9 \\ 112.9$	$110.0 \\ 113.0$	108.4	106.7	104.9	0	0	0	0 0
35	113.9	114.9	112.9	112.9	$111.4 \\ 111.9$	109.7 108.9	107.9 106.9	0	0	0 0	0
36	111.3	114.9	112.3	108.3	111.3	111.3	101.3	ŏ	ŏ	ŏ	0 0
37	119.2	122.2	116.2	120.2	116.2	116.2	114.2	Ő	0	õ	0
38	108.4	122.2 111.4	105.4	109.4	105.4	105.4	103.4	ŏ	ŏ	ŏ	ŏ
39	102.4	105.4	103.4	99.4	102.4	102.4	92.4	ŏ	ŏ	ŏ	ŏ
40	112.5	114.5	109.5	106.5	106.5	101.5	97.5	Ō	0	0	0
41	114.6	117.6	111.6	115.6	111.6	111.6	109.6	0	0	0	0

Panda and Koala - Scenario 2 Input Data (Summer) 105.7 112.7 113.7 110.7 111.7 110.7 107.7 101.9 104.9 102.9 98.9 101.9 101.9 91.9 119.8 113.8 118.8 121.8 115.8 115.8 115,8 114.3 117.3 111.3 115.3 111.3 111.3 109.3 Ω Û. /Number of Barriers /Barrier Coordinates, (input exact # of lines to match Number of Barriers) Y1 X2 ¥2 z2 /#  $\mathbf{z1}$ X1 Temperature (deg celsius) /Relative Humidity %value (0 - 100) /Wind - Predominant Bearing (From) /Wind - Second Predominant Bearing (From) /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind >15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh /Inversion 12.5 /Neutral - No Wind 35.5 /Lapse - No Wind 10.4 /Neutral - Wind from Predominant Direction 1 /Neutral - Wind from Predominant Direction 2 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 3.6 /Minimum Sound Level of Concern (dBA) /Radial Receiver Origin - X and Y 

Panda and Koala - Scenario 2 Input Data (Summer) /Minimum Radial Distance from Receiver Origin /Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step /Receiver Profiles /Number of Profiles (max 10) Q, /For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. Ω Ω 

0 475

Panda a	nd Koala	- Scenario	2 Input	Data (Summe:	r)
600	475				
2800	450				
3460	450				
4640	425				
6000	450				
200000 270	450				
0	475				
1640	475				
2600	450				
3600	450				
4620	475				
200000	475				
315					
0	475				
790	475				
800	495				
1800	495				
	475				
200000	475				
359					
0	475				
250	480				
710	485				
1000	505				
2000	505				
2100	495				
200000	495				

#### Panda and Koala - Scenario 2 Input Data (Winter)

This is the data used for the operating stage of the Panda pit and the initial stage of the Koala pit. Due to the proximity of this pit to the plant, the model includes both operations. The year modelled is 2001.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,170,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

```
This data is for:
WINTER
This is a file for the input to SOUNDMDL
/Output File Name (No Extension)
NWTD-P2W
/Replace File or Append (R/A)
R
/Identifier
NWT Diamonds - Panda & Koala Pits Scenario 2 (2001) - Winter
/Metric or English (M/E)
М
/Number of Sources
45
/Source Coordinates, (input exact # of lines to match Number of Sources)
/Number
          Х
                          Y
                                          Z
                                                 Comment
         18000
                   6600
                              490, "Plant Building"
1
2
         18000
                   6300
                              465, "Main Powerplant"
                              465, "Crusher"
3
         18060
                   6300
4
                              490, "Panda Dump Road Flat d1"
         16600
                   7750
5
         17080
                   7870
                              490, "Panda Dump Road Flat d2"
6
         17500
                   8100
                              490, "Panda Dump Road Flat d3"
7
                              490, "Panda Dump Road Flat d4"
         17920
                   8240
8
         18340
                   8200
                              490, "Panda Dump Road Flat d5"
9
                              490, "Panda Dump Road Flat d6"
         18860
                   8100
10
         19260
                   8020
                              467, "Panda Dump Road grade d7"
11
         19960
                   8120
                              427, "Panda Dump Road grade d8"
                             442, "Koala Dump Road grade d1"
442, "Koala Dump Road grade d2"
460, "Koala Dump Road grade d3"
12
         18975
                   7050
13
         18850
                   7100
14
         18500
                   7125
                              475, "Koala Dump Road grade d4"
15
         18240
                   7160
16
         17925
                   7060
                              485, "Koala Dump Road flat d5"
                              485, "Koala Dump Road grade d6"
17
         17600
                   7040
                              495, "Koala Dump Road flat d7"
18
         17250
                   7010
                              495, "Koala Dump Road flat d8"
19
                   6995
         16920
                              495, "Koala Dump Road flat d9"
495, "Koala Dump Road flat d10"
20
         16650
                   6990
21
         16250
                   6950
22
         15925
                   6930
                              495, "Koala Dump Road flat d11"
23
                              475, "Panda Ore Road Flat ol"
         18140
                   6940
24
         18240
                   7160
                              475, "Panda Ore Road Flat o2"
25
                              475, "Panda Ore Road Flat o3"
         18400
                   7340
26
         18620
                              470, "Panda Ore Road Grade o4"
                   7500
27
         18860
                   7600
                              465, "Panda Ore Road Grade o5"
                              460, "Panda Ore Road Grade o6"
28
         19100
                   7740
                              457, "Panda Ore Road Grade o7"
29
         19340
                   7860
                              440, "Panda Ore Road Grade o8"
30
         19500
                   8030
                              427, "Panda Ore Road Grade o9"
31
         19660
                   8120
32
         19800
                              400, "Panda Ore Road Grade o10"
                   8050
```

Pand	la and K	oala -	Scenari	.0 2 Inp	ut Data	(Winte	r)				
33	199	00 8	000	375,"P	anda Or	e Road	Grade ol	1"			
34	198		900	350,"P	anda Or	e Road	Grade ol				
35	196		120		anda Sh						
36	196		120		anda Lo						
37 38	166 180		750 600		at at p at at p		ck Dump"				
39	180		600		oader a		١٢				
40	180		600	490, "E	xcavato	r at pl	ant"				
41	196		140	400,"P	anda Di	esel Ro	tary Dri	11"			
42	189		050	442,"K	oala Sh	ovel in	Pit"				
43 44	189 159		050 930	442,"K	oala Lo at at K	ader in Aala Bo	ck Dump"				
45	196		140				tary Dri				
							ore than		source)		
5				_		-					
	irce Sou										
/inp /No.			r of 11 250	nes to : 500	match N 1000	umber o 2000	f Source		E.	e	547
1 1	113	125 114	111	112	1111	108	4000 106	N O	E 0	S 0	W O
2	129.5	108.5	101.5				109.5	ŏ	ŏ	ŏ	ŏ
3	122.4	122.4	119.4	125.4		114.4	106.4	Ō	Ō	Ō	Ō
4	118.9	119,9	116.9		116.9	113.9	111.9	0	0	0	0
5	115.9	116.9	113.9		113.9		108.9	0	0	0	0
6 7	$115.9 \\ 115.9$	$116.9 \\ 116.9$	$113.9 \\ 113.9$	114.9	$113.9 \\ 113.9$	$110.9 \\ 110.9$	108.9	0 0	0 0	0 0	0 0
8	115.9	116.9	113.9	114.9 114.9	113.9	110.9	$108.9 \\ 108.9$	Õ	0	Ő	ŏ
9	115.9	116.9	113.9	114.9	113.9	110.9	108.9	ŏ	õ	ŏ	ŏ
10	121.6	125.5	117.4	117.5	115.9	114.2	112.4	0	0	0	0
11	124.6	128.5	120.4	120.5	118.9	117.2	115.4	0	0	0	0
12	83.4	87.3	79.2	79.3	77.7	76.0	74.2	0	0	0	0
13 14	80.4	84.3 84.3	76.2 76.2	76.3 76.3	74.7 74.7	73.0 73.0	71.2 71.2	0 0	0 0	0 0	0 0
15	80.4	84.3	76.2	76.3	74.7	73.0	71.2	ŏ	ŏ	ŏ	ŏ
16	74.7	75.7	72.7	73.7	72.7	69.7	67.7	Ŏ	Ō	Ŏ	õ
17	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	0
18	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0	0	0
19 20	74.7 74.7	75.7 75.7	72.7 72.7	73.7 73.7	72.7 72.7	69.7 69.7	67.7 67.7	0 0	0 0	0 0	0 0
21	74.7	75.7	72.7	73.7	72.7	69.7	67.7	ŏ	ŏ	ŏ	ŏ
22	77.7	78.7	75.7	76.7	75.7	72.7	70.7	ŏ	ŏ	ŏ	ŏ
23	111.4	112.4	109.4	110.4	109.4	106.4	104.4	0	0	0	0
24	108.4	109.4	106.4	107.4	106.4	103.4	101.4	0	0	0	0
25 26	108.4 114.1	$109.4 \\ 118.0$	$106.4 \\ 109.9$	$107.4 \\ 110.0$	$106.4 \\ 108.4$	103.4 106.7	101.4 104.9	0 0	0 0	0 0	0
27	114.1	118.0 118.0	109.9	110.0	108.4	106.7	104.9	ŏ	õ	ŏ	0 0
28	114.1	118.0	109.9	110.0	108.4	106.7	104.9	ŏ	ŏ	ŏ	ŏ
29	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
30	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
31	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
32 33	$114.1 \\ 114.1$	118.0 118.0	$109.9 \\ 109.9$	110.0 110.0	$108.4 \\ 108.4$	106 7 106.7	$104.9 \\ 104.9$	0 0	0 0	0 0	0 0
34	117.1	121.0	112.9	113.0	111.4	109.7	107.9	ŏ	ŏ	ŏ	ŏ
35	113.9	114.9	111.9	112.9	111.9	108.9	106.9	ō	Õ	ŏ	ŏ
36	111.3	114.3	112.3	108.3	111.3	111.3	101.3	0	0	0	0
37	119.2	122.2	116.2	120.2	116.2	116.2	114.2	0	0	0	0
38	108.4	111.4	105.4	109.4	105.4	105.4	103.4	0	0	0	0
39 40	$102.4 \\ 112.5$	$105.4 \\ 114.5$	103.4 109.5	99.4 106.5	$102.4 \\ 106.5$	$102.4 \\ 101.5$	92.4 97.5	0 0	0	0 0	0 0
40	112.5	114.5 117.6	111.6	115.6	111.6	101.5 111.6	97.5 109.6	0	0	ŏ	0
								v		•	v

Panda and Koala - Scenario 2 Input Data (Winter) 110.7 111.7 110.7 107.7 105.7 112.7 113.7 101.9 101.9 104.9 102.9 98.9 101.9 91.9 113.8 115.8 115.8 115.8 121.8 119.8 118.8 114.3 117.3 111.3 115.3 111.3 111.3 109.3 /Number of Barriers /Barrier Coordinates, (input exact # of lines to match Number of Barriers) /# ¥2  $\mathbf{Z2}$ ¥1  $\mathbf{Z1}$ X2 X1 Temperature (deg celsius) -25 /Relative Humidity %value (0 - 100) /Wind - Predominant Bearing (From) /Wind - Second Predominant Bearing (From) /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind >15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh /Inversion /Neutral - No Wind 33.28 /Lapse - No Wind 5.2 /Neutral - Wind from Predominant Direction 1 19.2 /Neutral - Wind from Predominant Direction 2 11.52 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 1.8 /Minimum Sound Level of Concern (dBA) /Radial Receiver Origin - X and Y 

Panda and Koala - Scenario 2 Input Data (Winter) /Minimum Radial Distance from Receiver Origin /Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) Ω /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step /Receiver Profiles /Number of Profiles (max 10) /For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. 

0 475

Panda a	nd Koala	- Scenario	2 Input	. Data	(Winter)
600	475				
2800	450				
3460	450				
4640	425				
6000	450				
200000	450				
270					
0	475				
1640	475				
2600	450				
3600	450				
	475				
200000	475				
315					
0	475				
790	475				
800	495				
1800	495				
	475				
200000 359	475				
0	475				
250	475				
710	485				
1000	505				
2000	505				
2100	495				
200000	495				

## Misery - Scenario 1 Input Data (Summer)

This is the data used to input the initial stages of the Misery pit. The year modelled is 2000.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,100,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

This data is for: SUMMER This is a file for the input to SOUNDMDL /Output File Name (No Extension) NWTD-M1S /Replace File or Append (R/A) R /Identifier NWT Diamonds - Misery Pit Scenario 1 (2000) - Summer /Metric or English (M/E) М /Number of Sources 12 /Source Coordinates, (input exact # of lines to match Number of Sources)  $\mathbf{Z}$ Comment /Number х Y 412, "Dump Road Grade d1" 39300 59850 442, "Dump Road Grade d2" 2 39200 59600 3 59500 450, "Dump Road Grade d3" 39450 4 39700 59600 450, "Dump Road Flat d4" 460, "Dump Road Grade d5" 460, "Dump Road Flat d6" 5 39950 59700 6 40150 59750 7 40400 59800 460, "Dump Road Flat d7" 8 40700 59850 460, "Dump Road Flat d8" 427, "Shovel in Pit" 427, "Loader in Pit" 9 39300 59850 10 39300 59850 11 40700 59850 460, "Cat at Rock Dump" 427, "Diesel Rotary Drill" 12 39300 59850 /Elevation of source above grade (average if more than one source) /Source Sound Power Levels and Directivities (NESW) /input exact number of lines to match Number of Sources /No. 63 125 250 500 1000 2000 4000 N E S W 122.5 118,3 116.8 126.4 118.4 115.1 113.3 0 0 0 0 1 119.5 115.3 0 2 123.4 115.4 113.8 112.1 110.3 ۵ 0 0 3 119.5 115.4 0 0 0 0 123.4 115.3 113.8 112.1 110.3 114.8 4 113.8 111.8 112.8 111.8 108.8 106.8 ۵ 0 0 0 5 119.5 123.4 115.3 115.4 113.8 112.1 110.3 0 0 0 0 6 0 0 113.8 114.8 111.8 112.8 111.8 108.8 106.8 0 0 7 114.8 111.8 0 0 0 113.8 112.8 111.8 108.8 0 106.8 116.8 114.8 8 117.8 114.8 115.8 111.8 109.8 0 0 0 0 112,8 113.8 112.8 115.8 107.8 0 0 9 114.8 109.8 0 0 109.0 0 0 10 112.0 106.0 110.0 106.0 106.0 104.0 0 0 117.2 120.2 114.2 118.2 114.2 114.2 112.2 Ö 0 0 0 11 12 117.4 120.4 114.4 118.4 114.4 114.4 112.4 0 0 0 ۵ /Number of Barriers 11 /Barrier Coordinates, (input exact # of lines to match Number of Barriers) /#  $\mathbf{Z2}$ X1 Y1  $\mathbf{Z1}$ X2 ¥2

Misery - Scenario 1 Input Data (Summer) 480.6 480.6 Temperature (deg celsius) /Relative Humidity %value (0 - 100) /Wind - Predominant Bearing (From) /Wind - Second Predominant Bearing (From) /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind >15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh /Inversion 12.5 /Neutral - No Wind 35.5 /Lapse - No Wind 10.4 /Neutral - Wind from Predominant Direction 1 /Neutral - Wind from Predominant Direction 2 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 3.6 /Minimum Sound Level of Concern (dBA) /Radial Receiver Origin - X and Y /Minimum Radial Distance from Receiver Origin /Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step з. /Receiver Profiles /Number of Profiles (max 10) 

## Misery - Scenario 1 Input Data (Summer)

/For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data.

	can	con
0	45	
400 550 1000	42 42 45	5
200000 45		
0 400	45 42	
900 2400	42 45	5
2700 200000	46	0
90 0	45	
1000 1100	42 41	5
200000 135		
0 200	45 45	0
870 950	42	5
200000 180 0	41 45	
150 1230	45 42	0
1600 200000	41	5
225 0	45	
970 1200	45 42	5
1500 1640	42 44	0
1900 2000	42 41	5
200000 270		
0 600	45 45	0
800 910	45 46	0
1020 1350	46 46	5
1450 1700	46 45	5
1900 200000	45 45	0
315 0	45	
200000	) 45	v

Misery - Scenario 1 Input Data (Summer) 359 

 359

 0
 450

 400
 425

 550
 425

 1000
 450

 200000
 450

### Misery - Scenario 1 Input Data (Winter)

This is the data used to input the initial stages of the Misery pit. The year modelled is 2000.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,100,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

This data is for: WINTER This is a file for the input to SOUNDMDL /Output File Name (No Extension) NWTD-M1W /Replace File or Append (R/A) R /Identifier NWT Diamonds - Misery Pit Scenario 1 (2000) - Winter /Metric or English (M/E) М /Number of Sources 12 /Source Coordinates, (input exact # of lines to match Number of Sources) Comment /Number Х Z 412, "Dump Road Grade d1" 59850 1 39300 39200 442, "Dump Road Grade d2" 2 59600 3 39450 59500 450, "Dump Road Grade d3" 450, "Dump Road Flat d4" 4 39700 59600 5 59700 460, "Dump Road Grade d5" 39950 6 7 40150 59750 460, "Dump Road Flat d6" 460, "Dump Road Flat d7" 460, "Dump Road Flat d8" 40400 59800 8 40700 59850 427, "Shovel in Pit" 9 39300 59850 427, "Loader in Pit" 10 59850 39300 460, "Cat at Rock Dump" 11 40700 59850 427, "Diesel Rotary Drill" 59850 12 39300 /Elevation of source above grade (average if more than one source) /Source Sound Power Levels and Directivities (NESW) /input exact number of lines to match Number of Sources 250 500 Е W 63 125 1000 2000 4000 N S /No. 118.3 116.8 0 0 1 122.5 126.4 118.4 115.1 113.3 0 0 0 0 119.5 123.4 115.3 115.4 113.8 112.1 110.3 0 0 2 0 0 ۵ 0 3 119.5 123.4 115.3 115.4 113.8 112.1 110.3 0 0 0 0 4 112.8 111.8 108.8 113.8 114.8 111.8 106.8 5 123.4 115.3 115.4 113.8 112.1 ۵ 0 0 ۵ 119.5 110.3 6 113.8 114.8 111.8 112.8 111.8 108.8 106.8 0 0 0 0 114.8 0 7 113.8 111.8 112.8 111.8 108.8 106.8 0 0 0 0 0 0 8 116.8 117.8 114.8 115.8 114.8 111.8 109.8 0 0 0 9 115.8 112.8 113.8 112.8 109.8 107.8 ۵ 0 114.8 0 0 0 0 106.0 10 109.0 112.0 106.0 110.0 106.0 104.0 0 0 0 0 114.2 118.2 114.2 114.2 112.2 11 117.2 120.2 117.4 120.4 114.4 118.4 114.4 114.4 112.4 0 0 0 0 12 /Number of Barriers 11 /Barrier Coordinates, (input exact # of lines to match Number of Barriers)  $\mathbf{Z2}$ /# Y1 x2 Y2 X1 Z1

Misery - Scenario 1 Input Data (Winter)

480.6 480.6 Temperature (deg celsius) -25 /Relative Humidity %value (0 - 100) /Wind - Predominant Bearing (From) /Wind - Second Predominant Bearing (From) /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind >15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh /Inversion /Neutral - No Wind 33.28 /Lapse - No Wind 5.2 /Neutral - Wind from Predominant Direction 1 19.2 /Neutral - Wind from Predominant Direction 2 11.52 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 1.8 /Minimum Sound Level of Concern (dBA) /Radial Receiver Origin - X and Y /Minimum Radial Distance from Receiver Origin /Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step /Receiver Profiles /Number of Profiles (max 10) 

## Misery - Scenario 1 Input Data (Winter)

/For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. 425 <u>4</u>00

400 900 2400 2700 200000	425 425 450 460 460
90 0 1000 1100 200000 135	450 425 415 415
0 200 870 950 200000	450 450 425 415 415
180 0 150 1230 1600 200000	450 450 425 415 415
225 0 970 1200 1500 1640 1900 2000	450 425 425 425 440 425 415
2000 200000 270 0 600 800 910	415 450 450 455 460
1020 1350 1450 1700 1900 200000 315	465 460 455 450 450
315 0 200000	450 450

Misery - Scenario 1 Input Data (Winter) 359 0 450 400 425 550 425 1000 450 200000 450

#### Misery - Scenario 2 Input Data (Summer)

This is the data used to input the production stage of the Misery pit. The year modelled is 2002.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,100,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

This data is for: SUMMER This is a file for the input to SOUNDMDL /Output File Name (No Extension) NWTD-P2S /Replace File or Append (R/A) R /Identifier NWT Diamonds - Panda & Koala Pits Scenario 2 (2001) - Summer /Metric or English (M/E) М /Number of Sources /Source Coordinates, (input exact # of lines to match Number of Sources) /Number Z Comment Х Y 490, "Plant Building" 465, "Main Powerplant" 465, "Crusher" 490, "Panda Dump Road Flat d1" 490, "Panda Dump Road Flat d2" 490, "Panda Dump Road Flat d3" 490, "Panda Dump Road Flat d4" 490, "Panda Dump Road Flat d5" 490, "Panda Dump Road Flat d6" 467, "Panda Dump Road grade d7" 427, "Panda Dump Road grade d8" 442, "Koala Dump Road grade d1" 442, "Koala Dump Road grade d2" 460, "Koala Dump Road grade d3" 475, "Koala Dump Road grade d4" 485, "Koala Dump Road flat d5" 485, "Koala Dump Road grade d6" 495, "Koala Dump Road flat d7" 495, "Koala Dump Road flat d8" 495, "Koala Dump Road flat d9" 495, "Koala Dump Road flat d10" 495, "Koala Dump Road flat d11" 475, "Panda Ore Road Flat o1" 475, "Panda Ore Road Flat o2" 475, "Panda Ore Road Flat o3" 470, "Panda Ore Road Grade o4" 465, "Panda Ore Road Grade o5" 460, "Panda Ore Road Grade o6" 457, "Panda Ore Road Grade o7" 440, "Panda Ore Road Grade o8" 427, "Panda Ore Road Grade o9" 400, "Panda Ore Road Grade o10" 375, "Panda Ore Road Grade o11" 

# Misery - Scenario 2 Input Data (Summer)

34 35 36 37 38 39 40 41 42 43 44	5       19660       8120       427, "Panda Shovel in Pit"         5       19660       8120       427, "Panda Loader in Pit"         7       16600       7750       490, "Cat at Panda Rock Dump"         8       18000       6600       490, "Cat at plant"         9       18000       6600       490, "Loader at plant"         9       18000       6600       490, "Excavator at plant"         1       19660       8140       400, "Panda Diesel Rotary Drill"         1       18975       7050       442, "Koala Shovel in Pit"         1       18975       7050       442, "Koala Loader in Pit"         1       15925       6930       495, "Cat at Koala Rock Dump"										
/El€							ore than		source)		
5 /Sou	irce Sou	nd Powe	r Level	s and D	irectiv	ities (	NESW)				
							of Source			~	
/No.		125	250	500	1000	2000	4000	N	E	S	W
1 2	113 120 5	114 109 5	111 101.5	112	111 108.5	108 110.5	106 109.5	0 0	0	0 0	0 0
3	$129.5 \\ 122.4$	$108.5 \\ 122.4$	119.4	$104.5 \\ 125.4$	108.3 121.4	110.5 114.4	109.5	ŏ	0	ŏ	ŏ
4	118.9	119.9	116.9	123.4	116.9	113.9	111.9	ŏ	ŏ	ŏ	ŏ
5	115.9	116.9	113.9	114.9	113.9	110.9	108.9	ŏ	ŏ	ŏ	ŏ
6	115.9	116.9	113.9	114.9	113.9	110.9	108.9	Õ	õ	ŏ	ŏ
7	115,9	116.9	113.9	114.9	113.9	110.9	108.9	Ŏ	Ŏ	Ŏ	Ō
8	115.9	116.9	113.9	114.9	113.9	110.9	108.9	0	0	0	0
9	115.9	116.9	113.9	114,9	113.9	110.9	108.9	0	0	0	0
10	121.6	125.5	117.4	117.5	115.9	114.2	112.4	Ó	0	0	0
11	124.6	128.5	120.4	120.5	118.9	117.2	115.4	0	0	0	0
12	83.4	87.3	79.2	79.3	77.7	76.0	74.2	0	0	0	0
13	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	0
14	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	0
15	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	0
16 17	74.7	75.7	72.7 76.2	73.7 76.3	72.7 74.7	69.7 73.0	67.7 71.2	0 0	0	0 0	0 0
$18^{17}$	80.4 74.7	84.3 75.7	72.7	73.7	72.7	69.7	67.7	õ	ŏ	ŏ	ŏ
19	74.7	75.7	72.7	73.7	72.7	69.7	67.7	ŏ	ŏ	ŏ	ŏ
20	74.7	75.7	72.7	73.7	72.7	69.7	67.7	ŏ	ŏ	ŏ	ŏ
21	74.7	75.7	72.7	73.7	72.7	69.7	67.7	ŏ	ŏ	ŏ	ŏ
22	77.7	78.7	75.7	76.7	75.7	72.7	70.7	ŏ	ō	ŏ	ŏ
23	111.4	112.4	109.4	110.4	109.4	106.4	104.4	Õ	õ	ŏ	ŏ
24	108.4	109.4	106.4	107.4	106.4	103.4	101.4	0	0	0	0
25	108.4	109.4	106.4	107.4	106.4	103.4	101.4	0	0	0	0
26	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
27	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
28		118.0		110.0			104.9	0	0	0	0
29	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
30	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0 0
31 32	114.1	118.0	$109.9 \\ 109.9$	$110.0 \\ 110.0$	108.4 108.4	106.7 106.7	104.9	0 0	Ő	0 0	ŏ
33	114.1 114.1	$118.0 \\ 118.0$	109.9	110.0	108.4 108.4	106.7	$104.9 \\ 104.9$	ŏ	ŏ	ŏ	ŏ
34	117.1	121.0	112.9	113.0	111.4	109.7	107.9	ŏ	ŏ	ŏ	ŏ
35	113.9	114.9	111.9	112.9	111.9	108.9	106.9	ŏ	ŏ	ŏ	ŏ
36	111.3	114.3	112.3	108.3	111.3	111.3	101.3	Ō	Õ	Õ	Ŏ
37	119.2	122.2	116.2	120.2	116.2	116.2	114.2	ŏ	Õ	õ	Õ
38	108.4	111.4	105.4	109.4	105.4	105.4	103.4	Ō	Ō	Ō	Ō
39	102.4	105.4	103.4	99.4	102.4	102.4	92.4	Ō	Ó	Õ	0
40	112.5	114.5	109.5	106.5	106.5	101.5	97.5	0	0	0	0
41	114.6	117.6	111.6	115.6	111.6	111.6	109.6	0	0	0	0
42	112.7	113.7	110.7	111.7	110.7	107.7	105.7	0	0	0	0

Misery - Scenario 2 Input Data (Summer) 101.9 104.9 102.9 98.9 101.9 101.9 91.9 118.8 121.8 115.8 119.8 115.8 115.8 113.8 117.3 111.3 114.3 115.3 111.3 111.3 109.3 Û. /Number of Barriers /Barrier Coordinates, (input exact # of lines to match Number of Barriers)  $\mathbf{Z2}$ /# Y1 Z1 x2 ¥2 X1 Temperature (deg celsius) /Relative Humidity %value (0 - 100) /Wind - Predominant Bearing (From) /Wind - Second Predominant Bearing (From) /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind >15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh /Inversion 12.5 /Neutral - No Wind 35.5 /Lapse - No Wind 10.4 /Neutral - Wind from Predominant Direction 1 /Neutral - Wind from Predominant Direction 2 /Lapse - Wind from Predominant Direction 1 /Lapse - Wind from Predominant Direction 2 3.6 /Minimum Sound Level of Concern (dBA) /Radial Receiver Origin - X and Y /Minimum Radial Distance from Receiver Origin

Misery - Scenario 2 Input Data (Summer) /Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step /Receiver Profiles /Number of Profiles (max 10) a /For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. 

Misery	- Scenario	2	Input	Data	(Summer)
2800	450				
3460	450				
4640	425				
6000	450				
200000 270	450				
0	475				
1640	475				
2600	450				
3600	450				
4620	475				
200000	475				
315					
0	475				
790	475				
800	495				
1800	495				
1810	475				
200000 359	475				
0	475				
250	480				
710	485				
1000	505				
2000	505				
2100	495				
200000	495				

## Misery - Senario 2 Input Data (Winter)

This is the data used to input the production stage of the Misery pit. The year modelled is 2002.

Note: The X, Y and Z coordinates are in metres. The X coordinates require N500,000 to be added to obtain standard coordinates. The Y coordinates require E7,100,000 to be added to obtain standard coordinates. The Z coordinates require no correction.

This data is for: WINTER This is a file for the input to SOUNDMDL /Output File Name (No Extension) NWTD-P2W /Replace File or Append (R/A) R /Identifier NWT Diamonds - Panda & Koala Pits Scenario 2 (2001) - Winter /Metric or English (M/E) м /Number of Sources /Source Coordinates, (input exact # of lines to match Number of Sources) /Number х Y Ζ Comment 490, "Plant Building" 465, "Main Powerplant" 465, "Crusher" 490, "Panda Dump Road Flat d1" 490, "Panda Dump Road Flat d2" 490, "Panda Dump Road Flat d3" 490, "Panda Dump Road Flat d4" 490, "Panda Dump Road Flat d5" 490, "Panda Dump Road Flat d6" 467, "Panda Dump Road grade d7" 427, "Panda Dump Road grade d8" 442, "Koala Dump Road grade d1" 442, "Koala Dump Road grade d2" 460,"Koala Dump Road grade d3" 475,"Koala Dump Road grade d4" 485, "Koala Dump Road flat d5" 485, "Koala Dump Road grade d6" 495, "Koala Dump Road flat d7" 495, "Koala Dump Road flat d8" 495, "Koala Dump Road flat d9" 495, "Koala Dump Road flat d10" 495, "Koala Dump Road flat d11" 475, "Panda Ore Road Flat o1" 475, "Panda Ore Road Flat o2" 475, "Panda Ore Road Flat o3" 470, "Panda Ore Road Grade o4" 465, "Panda Ore Road Grade o5" 460, "Panda Ore Road Grade o6" 457, "Panda Ore Road Grade o7" 440, "Panda Ore Road Grade o8" 427, "Panda Ore Road Grade o9" 400, "Panda Ore Road Grade o10" 375, "Panda Ore Road Grade o11"

# Misery - Senario 2 Input Data (Winter)

	19660       8120       427, "Panda Shovel in Pit"         19660       8120       427, "Panda Loader in Pit"         16600       7750       490, "Cat at Panda Rock Dump"         18000       6600       490, "Cat at plant"         18000       6600       490, "Loader at plant"         18000       6600       490, "Loader at plant"         18000       6600       490, "Excavator at plant"         18000       6600       490, "Excavator at plant"         19660       8140       400, "Panda Diesel Rotary Drill"         18975       7050       442, "Koala Shovel in Pit"         18975       7050       442, "Koala Loader in Pit"         15925       6930       495, "Cat at Koala Rock Dump"										
5 /Sou	rce Sou	nd Powe	r Level	s and D	irectiv	ities (	NESW)				
/inp	out exac	t numbe	r of li	nes to	match N	umber o	f Source				
/No.		125	250	500	1000	2000	4000	N	E	S	W
1 2	113 129.5	114 108.5	11 <b>1</b> 101.5	112 104.5	111 108.5	108 110.5	106 109.5	0	0 0	0 0	0 0
3	122.4	122.4	119.4	125.4	121.4	114.4	106.4	õ	ŏ	ŏ	ŏ
4	118.9	119.9	116.9	117.9	116.9	113.9	111.9	0	0	0	0
5 6	$115.9 \\ 115.9$	116.9	$113.9 \\ 113.9$	114.9	113.9	110.9	108.9	0 0	0 0	0 0	0 0
7	115.9	$116.9 \\ 116.9$	113.9	$114.9 \\ 114.9$	$113.9 \\ 113.9$	$110.9 \\ 110.9$	$108.9 \\ 108.9$	0	0	ŏ	ŏ
8	115.9	116.9	113.9	114.9	113.9	110.9	108.9	õ	0	0	0
9	115.9	116.9	113.9	114.9	113.9	110.9	108.9	0	0	0	0
10 11	$121.6 \\ 124.6$	$125.5 \\ 128.5$	$117.4 \\ 120.4$	117.5 120.5	$115.9 \\ 118.9$	$114.2 \\ 117.2$	$112.4 \\ 115.4$	0 0	0	0 0	0 0
12	83.4	87.3	79.2	79.3	77.7	76.0	74.2	ŏ	ŏ	ŏ	ŏ
13	80.4	84.3	76.2	76.3	74.7	73.0	71.2	Ó	Ő	Ō	0
14	80.4	84.3	76.2	76.3	74.7	73.0	71.2	0	0	0	Ő
15 16	80.4 74.7	84.3 75.7	76.2 72.7	76.3 73.7	74.7 72.7	73.0 69.7	71.2 67.7	0 0	0	0 0	0 0
17	80.4	84.3	76.2	76.3	74.7	73.0	71.2	ŏ	Ő	õ	ŏ
18	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0	0	0
19 20	74.7	75.7	72.7	73.7	72.7	69.7	67.7	0	0 0	0	0
20	74.7 74.7	75.7 75.7	72.7 72.7	73.7 73.7	72.7 72.7	69.7 69.7	67.7 67.7	0 0	ŏ	0 0	0 0
22	77.7	78.7	75.7	76.7	75.7	72.7	70.7	ŏ	õ	0	0
23	111.4	112.4	109.4	110.4	109.4	106.4	104.4	0	0	0	0
24 25	$108.4 \\ 108.4$	109.4	$106.4 \\ 106.4$	107.4 107.4	$106.4 \\ 106.4$	$103.4 \\ 103.4$	101.4	0	0	0 0	0 0
26	108.4 114.1	$109.4 \\ 118.0$	109.9	110.0	108.4	105.4	101.4 104.9	0 0	õ	õ	0
27	114.1	118.0	109.9	110.0	108.4	106.7	104.9	Õ	Õ	Ō	0
28		118.0			108.4			0	0	0	0
29 30	$114.1 \\ 114.1$	$118.0 \\ 118.0$	$109.9 \\ 109.9$	110.0 110.0	108.4 108.4	106.7 106.7	104.9 104.9	0 0	0	0 0	0 0
31	114.1 114.1	118.0 118.0	109.9	110.0	108.4	106.7	104.9	ŏ	ŏ	ŏ	Ő
32	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	Ō	0	0
33	114.1	118.0	109.9	110.0	108.4	106.7	104.9	0	0	0	0
34 35	$117.1 \\ 113.9$	121.0 114.9	$112.9 \\ 111.9$	$113.0 \\ 112.9$	111.4 111.9	109.7 108.9	107.9 106.9	0 0	0	0 0	0 0
36	111.3	114.3	112.3	108.3	111.3	111.3	101.3	ŏ	ŏ	ŏ	ŏ
37	119.2	122.2	116.2	120.2	116.2	116.2	114.2	Ō	0	Ō	0
38	108.4	111.4	105.4	109.4	105.4	105.4	103.4	0	0	0	0
39 40	$102.4 \\ 112.5$	$105.4 \\ 114.5$	$103.4 \\ 109.5$	$99.4 \\ 106.5$	102.4 106.5	102.4 101.5	92.4 97.5	0 0	0 0	0 0	0 0
41	112.5 114.6	114.5	111.6	115.6	111.6	111.6	97.5 109.6	ŏ	Ő	ŏ	ŏ
42	112.7	113.7	110.7	111.7	110.7	107.7	105.7	õ	Ŏ	Õ	ŏ

Misery - Senario 2 Input Data (Winter)

	101.9 118.8 114.3 ber of 1	104.9 121.8 117.3 Barrier	102.9 115.8 111.3	98.9 119.8 115.3	101.9 115.8 111.3	101.9 115.8 111.3	91.9 113.8 109.3	0 0 0	0 0 0	0 0 0	0 0 0
20 /Bar 1 2 3 4 5 6 7 8 9 10 11 12 13	rier Co X1 19000 16860 17080 17200 17300 17020 20000 23800 22700 16500 20550 16500 18600		es, (in) 7950 8550 8600 8200 8500 7450 3800 7900 7600 7700 .0000 7700 6800		ct # of Z1 505 490 498 497 504 505 505 505 505 500 505 500 495 445	19 17 17 17 17 21 23 22 19 20	to match X2 0000 080 300 240 200 100 8800 8800 8800 8800 8800 8800	9	er of Y2 9600 8600 8260 8260 8260 8260 8260 8260 8	Barriers	Z2 505 498 490 497 504 505 505 500 505 500 495 445
-25		-	7200 7200 6800 7700 8300 8300 7700 celsius)		445 445 457 457 457 457	19 18 19 20 20	9000 9000 9400 9000 9000 9400		7200 6800 6800 8300 8300 7700 7700		445 445 457 457 457 457
<pre>/Relative Humidity %value (0 - 100) 20 /Wind - Predominant Bearing (From) 110 /Wind - Second Predominant Bearing (From) 315 /Environmental Conditions (enter 0 for % if they don't exist or are insignificant /Sum of percentage should add up to 100% (including % wind &gt;15 Kmh) /Percentage of Time Wind Exceeds 15 Kmh 41 /Inversion 26 /Neutral - No Wind</pre>											
33.28 /Lapse - No Wind 5.2 /Neutral - Wind from Predominant Direction 1 19.2 /Neutral - Wind from Predominant Direction 2											
/Lapse - Wind from Predominant Direction 1 3 /Lapse - Wind from Predominant Direction 2											
25 /Rad	lial Rec	eiver (	vel of C Origin -								
1800 /Min		000 dial D:	istance	from Re	ceiver	Origin					

/Maximum Radial Distance from Receiver Origin /Receiver Height above grade 1.5 /Radial Step Multiplier (>1; The smaller the multiplier the more refined /the data, however, the longer the program runs 1.015 /Radial Starting Angle (North=0) /Radial Finishing Angle (Runs Clockwise Max 359; Must be larger than start) /Radial angle step /Receiver Profiles /Number of Profiles (max 10) /For each profile input Profile Bearing, Then pairs of Radial Dist, Elev /Start each with Radial Dist of 0 and finish each with Radial Dist of 200000. /The max radial entries per profile is 50. The profile bearings must increase /The profile range must bracket the radial sweep, If you are doing a /complete sweep, the 1st profile should be bearing 0 and the last bearing 359 /They can contain identical data. 

Misery - Senario 2 Input Data (Winter)

0 475 600 475

Misery	- Senario	2	Input	Data	(Winter)
2800	450				
3460	450				
4640	425				
6000	450				
200000	450				
270					
0	475				
1640	475				
2600	450				
3600	450				
4620	475				
200000	475				
315	475				
0	475				
790 800	475				
1800	495 495				
1810	495				
200000					
359	475				
0	475				
250	480				
710	485				
1000	505				
2000	505				
2100	495				
200000	495				