



APPLICATION FACT SHEET



Johnson Matthey
Catalysts

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Case No. 502: SCRT® Installed on 3500 HP Cummins Diesel Engine used to Generate Power for Snow Making Equipment in California

Snow Summit Ski Resort of Big Bear Lake, California had a unique requirement to control PM, NOx, CO and VOC emissions from their Cummins QSK78 engine. They chose Johnson Matthey's SCRT®, which contains a patented CRT® filter system and a urea injection SCR catalyst system.

PM Limit 0.045 g/Bhp-hr.....Achieved 98% Reduction
NOx Limit 0.47 g/Bhp-hr.....Achieved 94.6% Reduction
CO Limit 0.20 g/Bhp-hr.....Achieved 96% Reduction
VOC Limit 0.05 g/Bhp-hr.....Achieved 92% Reduction
Ammonia Slip.....Achieved < 10 ppm
(All emission limits were met)

Background

During ski season, Snow Summit Ski Resort must operate their Cummins QSK78 engines almost continuously to generate power for their remote site. This power is used to operate snow making and other auxiliary equipment. To meet the SCAQMD stringent air emissions limits, Snow Summit contacted their local Cummins distributor, who in turn contacted Johnson Matthey.

Since high level reductions of PM, NOx, CO and VOC was required, Johnson Matthey proposed their SCRT system, comprising a patented CRT system and a urea SCR system. The CRT incorporates an active oxidation catalyst plus particulate filter and the urea SCR system includes a urea injection module, SCR catalytic converter and electronic controls. The SCRT has been operating more than 2000 hours meeting or exceeding the SCAQMD limits.

Summary

- **Product:** SCRT® system
- **Application:** Cummins QSK78 3500 HP diesel engine
- **Customer:** Snow Summit Ski Resort
- **Location:** Big Bear Lake, CA
- **Installed By:** Snow Summit
- **Date Installed:** September 2003
- **Operation:** Seasonal Support (1200 hours/year)
- **Pollutants:** PM, NOx, CO, VOC and NH₃
- **Comments:** Snow Summit buying the Cummins engine and equipping it with a JM SCRT emissions control system was a very cost effective solution. Now they can generate snow cleanly from November through April.

Cummins QSK78 diesel engine with CRT filter converter (top). Urea injector, electronic controls (not shown) and SCR catalytic converter (bottom).



ENVIRONMENTAL CATALYSTS AND TECHNOLOGIES

