

Cape Town, South Africa, Addresses Odor Concerns in Tight Space with Six Compact, Low-Maintenance IMS I-BOx® Biological Odor Control Systems

In the summer of 2017, the City of Cape Town, South Africa, installed six I-BOx® biological odor control systems as part of the second phase of its Cape Flats 3 Bulk Sewer (CF3) project. The upgrade project provides extra capacity, allowing the City to periodically decommission other sewer infrastructure in the area for much-needed maintenance and rehabilitation during problems such as blockages. The CF3 is a critical component of the City's sewer network and serves a population of approximately 350,000 residents in the Bonteheuwel, Heideveld, Manenberg, Gugulethu and Nyanga areas.

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Hannes Coetzee
Contracts Manager
CSV Construction

The second phase of the CF3 was constructed below ground, close to or within existing roadways. Construction of the rising main section included valve chambers, each with a chimney to allow access for operation and maintenance. Five in-situ cast concrete air valve chambers were constructed to decompress the rising main as well as one in-situ cast concrete discharge chamber.

Consulting engineering firm AECOM needed to address the possibility of odor issues from

both the air valve chambers and the discharge chamber. With limited space in the chambers, accessibility for maintenance of an odor control system was a key concern. The IMS I-BOx® Series odor control system was specified for all six locations to fulfill the odor requirements of the project. The ease of installation and operation, the compact footprint design and the hybrid, two-stage process made the I-BOx® systems the best candidate for this project.

IMS local agent supplied five I-BOx® 42 model odor control systems with a capacity of 325 m³/h for the air valve chambers and one odor control system model I-BOx® 54 at a capacity of 425 m³/h for the discharge chamber. All six systems were

designed to ensure 99% removal efficiency at inlet hydrogen sulfide (H₂S) design concentration of 50 ppm average and 100 ppm peak. The I-BOx® odor control system is an advanced two-stage biological system that provides point source odor control. The first stage is a biological reactor where bacteria are used to oxidize hydrogen sulfide and organic sulfur compounds. The second stage uses activated carbon to remove residual H₂S and organic odors. With their compact and small footprint design as well as their “plug & play” installation profile, all six systems were able to be installed inside the concrete chambers, accessible from the top through a stainless steel manhole cover.

Hannes Coetzee, contracts manager for the local contractor, CSV Construction, commented, “we recently completed the project with great success and want to compliment you on the good service and product offered...it was a good experience for us and we are looking forward to work with your team again in future.”



IMS I-BOx® 42 at Cape Flats 3 Bulk Sewer Air Valve Chamber